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ADDRESSES AND ORIGINAL ARTICLES

SURGICAL ANATOMY OF THE ANAL CANAL, AND THE OPERATIVE TREATMENT OF HÆMORRHOIDS

BY

E. T. C. MILLIGAN, O.B.E., M.D. Melb., F.R.C.S. Eng., F.R.A.C.S.

HON. SURGEON TO ST. MARK'S HOSPITAL FOR DISEASES OF THE RECTUM, LONDON

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R. OFFICER, M.B., B.S. Melb.

RESIDENT SURGICAL OFFICER AT THE HOSPITAL

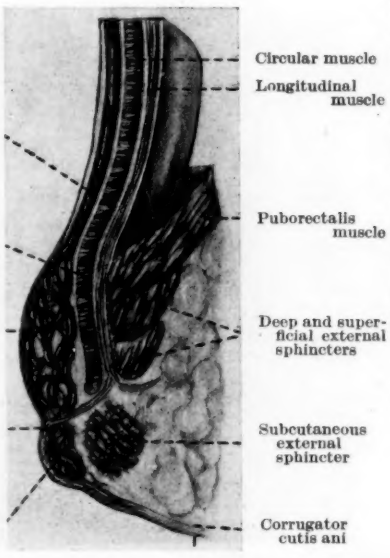
IT is the main purpose of this paper to describe an operation for the removal of hæmorrhoids based on anatomical study of the component parts of a hæmorrhoid and of the related muscles.

Though, embryologically, the rectum and anal canal join at the level of the valves of Morgagni—the anocutaneous line—it is suggested for clinical reasons and for purposes of description that the junction of the anus and the rectum be regarded as corresponding with the easily identified anorectal ring.

LINING OF THE ANAL CANAL

In a previous study (Milligan and Morgan 1934) of the anal musculature in its relation to fistulâ-in-ano, it was pointed out that certain underlying anatomical landmarks—the anorectal ring and the anal intermuscular septum—could be identified by palpation.

FIG. 2



Since the composite portions of a hæmorrhoid lie subjacent to the rectal mucosa and to the various linings of the anal canal, a description of these coverings is necessary for the identification of the underlying component parts of the hæmorrhoid (Figs. 1 and 2).

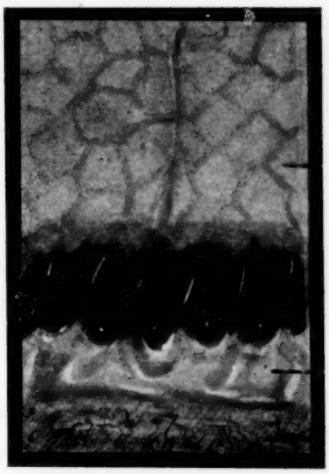


FIG. 1.—Drawing of linings of rectum and anal canal, showing (A) rectal mucosa; (B) plum-coloured anal mucosa; (C) anal canal skin; (D) skin of anus.

Rectal mucosa. — This is columnar, pale pink in colour and semi-transparent, allowing the branching veins draining the internal hæmorrhoidal plexus to be seen. This type of epithelium covers the pedicle of the hæmorrhoid in which lies the pedicle artery to each primary hæmorrhoid. The vessel cannot be seen through the mucous membrane but its pulsations may be readily felt.

Anal mucosa.—In the region of the anorectal ring, the pink epithelium of the rectum becomes thinner and then plum coloured, probably owing to the colour of the venous blood lying in the subjacent internal hæmorrhoidal plexus. This plum coloured mucosa is the anal mucosa and is formed of several layers of cuboidal epithelium. The level of the junction of the rectal and anal mucosa may be detected by the practised eye as an irregular line at the level of the anorectal ring, though this is not constant and depends obviously on the degree of mobility and redundance of the mucous membrane. The anal mucosa ends below at the anocutaneous line (the valves of Morgagni).

Anal canal skin.—The skin-like lining below the valves, as far distally as the skin of the anus, is dull white, smooth, adherent to the subjacent tissues and extremely sensitive. It has the structure of skin but there are no hairs and sweat glands and it consists of modified squamous or transitional epithelium. It is not seen until the anal verge is everted. The anal canal skin passes into the pigmented skin of the anus. The external hæmorrhoid plexus is subjacent to these two linings.

The first portion of a hæmorrhoid to prolapse is the portion covered by the anal canal skin, followed by the plum-coloured anal mucosa covering the internal hæmorrhoid (Fig. 3). The portion of pink rectal mucosa above the prolapsed hæmorrhoid becomes redundant owing to the daily downward drag in its longitudinal axis, so that a longitudinal fold is formed. This fold is palpable and contains the main artery, it may be appropriately called the "pile pedicle." It rarely prolapses far enough to be visible externally.

MUSCLES OF ANAL CANAL IN RELATION TO HÆMORRHOIDS

Only two of the four muscles that make up the anal sphincter mechanism need be described—the

FIG. 3.—Prolapsed right posterior hæmorrhoid. The skin of anal canal with external hæmorrhoid is first prolapsed; then follows the anal mucosa with subjacent internal hæmorrhoid. The artery forceps are applied to skin tags which correspond to each primary hæmorrhoid.

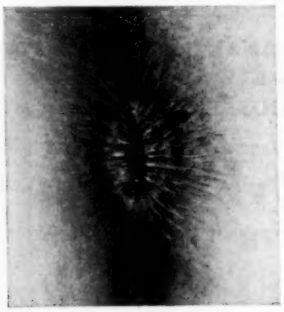


FIG. 4.—The subcutaneous external sphincter encircling the anus. The external hæmorrhoidal plexus is not apparent because it is not distended in the resting anus.

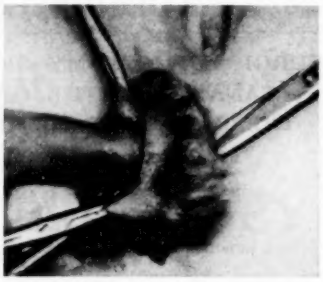


FIG. 6.—Distension of the external hæmorrhoidal plexus by obstruction to the main upward venous return produced by exposure of the internal hæmorrhoids. The outer boundary of the plexus is marked by the scissors, the inner boundary by the groove corresponding to the site of the attachment of the longitudinal muscle.

subcutaneous external sphincter and the longitudinal muscle and its extensions.

Subcutaneous external sphincter.—This is the annular muscle which alone surrounds the lower end of the anal canal and orifice (Fig. 4.) Above, this muscle is separated by an intermuscular septum from the superficial external sphincter and from the lower end of the internal sphincter, by the insertion of the longitudinal muscle of the anal canal. On its inner and superficial surface lies the external hæmorrhoidal plexus, covered by skin and a fibromuscular extension from the longitudinal muscle, the so-called corrugator cutis ani. The muscle may be exposed at the outer border of the external hæmorrhoidal plexus by cutting through the skin and the corrugator cutis ani (Fig. 5.). Reflex spasm of the subcutaneous external sphincter muscle, together with the other sphincters, occurs in cases of anal fissure and in some cases of thrombosed external hæmorrhoids. Contraction of the muscle causes the anus to become cone-shaped, lengthened, narrowed, and prominent. On the other hand, when prolapsed internal hæmorrhoids gradually occur and there is no pain, the subcutaneous external sphincter relaxes and swings outwards from the anal canal. The anal canal is thereby shortened and the prolapse aggravated.

Longitudinal muscle and extensions.—This is the continuation downwards of the longitudinal muscle coat of the rectum. Passing downwards from the level of the anorectal ring, it envelops the internal sphincter and passes between it and the external sphincter. Between the lower border of the internal sphincter and the upper border of the subcutaneous external sphincter, it gains a firm attachment to the skin of the anal canal, producing a depression called the anal intermuscular septum. This attachment varies, but it is usually broad and fan shaped. Levy (1936) has pointed out that the longitudinal muscle terminates, not as a tubular structure attached in a circle to the anal lining and elsewhere, but in a series of slips of various thicknesses. This we have confirmed by clinical observation and at operation. It may be that the absence of these slips or their relative thickness and strength may contribute to the occurrence of the prolapse of hæmorrhoids. Many of the fibres of the longitudinal muscle pass outwards under the skin of the anal canal and the skin of the anus superficially to the subcutaneous external sphincter. These fibres gain attachment to the peri-anal skin and are finally lost in the skin over the ischiorectal fossa as the so-called corrugator cutis ani. As the main sheet of the longitudinal muscle passes downwards between the internal sphincter and the subcutaneous external sphincter, it also sends intermuscular fibres outwards between the superficial external sphincter and subcutaneous external sphincter. These fibres are lost in the ischio-rectal fossa in the region of the outer border of the subcutaneous external sphincter.

The attachment of the longitudinal muscle at the anal intermuscular septum explains the presence of a depression or groove on the surface of a prolapsed pile (Fig. 6). This attachment, of variable thickness and strength, becomes elongated by the traction of the prolapsing hæmorrhoid. In hæmorrhoids of the third degree, it has been overstretched and its retaining powers are lost. It is then sometimes difficult to identify and the groove is much less distinct or absent.

Corrugator cutis ani.—This muscle was first described as a sheet of involuntary muscle attached to and radiating under the skin of the anus, to become lost in the skin covering the ischiorectal fossa. Investigations have shown that it is probably an expansion under the skin of the termination of the longitudinal muscle. It is a very definite structure surrounding the anus immediately under the skin to which it is attached. Internally it ends at the attachment of the longitudinal muscle to the lining of the anal canal. Externally, it becomes lost in the skin over the ischiorectal fossa. It forms, with the skin, the outer covering for the peri-anal space (*vide infra*). Microscopical section shows that the sheet is usually fibrous but occasionally involuntary muscle appears.

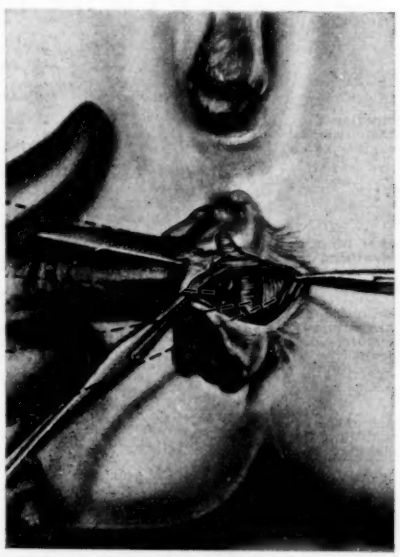


FIG. 5.—Peri-anal space opened by division of skin and lower half of corrugator cutis ani.

SUBMUCOUS AND PERI-ANAL SPACES

In relation to the anal canal and peri-anal regions there are two anatomical "spaces" that are of clinical importance (see Fig. 2).

Submucous space.—This space is situated in the anal canal, lying between the mucous membrane and the internal sphincter. Above, it becomes continuous with the submucous layer of the rectum. Below, the space is bounded by the longitudinal muscle at its insertion at the anal intermuscular septum. The internal hæmorrhoid plexus lies within the submucous space.

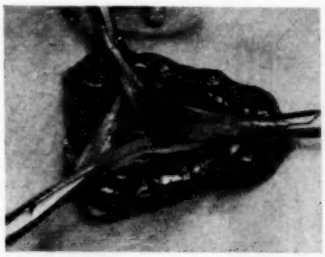


FIG. 7.—The pedicles of the three primary hæmorrhoids held and retracted by the pedicle forceps—"triangle of exposure." Note obstructive distension of both hæmorrhoidal plexuses.

FIG. 9.—Operation on the left lateral hæmorrhoid showing the first skin cut. The dotted line represents the *second* skin cut.

In the treatment of internal hæmorrhoids by means of sclerosing solutions, the injection is made into this space. Owing to the presence of the longitudinal muscle dividing the spaces, subcutaneous and most low anal fistulæ are not complicated by submucous extensions. It is only when the fistulous track passes into the anal canal above the insertion of the longitudinal muscle that submucous extensions of the track are common. A fissure-in-ano rarely reaches high enough to open this space. If it does a submucous abscess or fistula may result.

Peri-anal space.—As its name implies, this space surrounds the anus. It is limited above by the longitudinal muscle at its insertion at the anal intermuscular septum, and by the lateral extension of the longitudinal muscle between the subcutaneous and superficial external sphincters. Superficially the space is bounded by the skin and the M. corrugator cutis ani. Externally the space becomes continuous with the ischiorectal fossa, but its outer limit may be taken to correspond with the outer edge of the subcutaneous external sphincter. Contained in the space are the external hæmorrhoid plexus and the subcutaneous external sphincter.

Pathological lesions in this space are common, and unlike such in submucous space are characterised by pain. Peri-anal hæmatomata, both spontaneous and those associated with primary internal hæmorrhoids, lie within this space. Fissure-in-ano is an ulcer situated in the skin overlying the peri-anal space, and may extend down to or through the M. corrugator cutis ani. If extension through the corrugator occurs the subcutaneous external sphincter is laid bare. Infection in the peri-anal space produces a peri-anal abscess and resulting subcutaneous or low anal fistula.

THE BLOOD-VESSELS

It is now possible to consider the blood-vessels concerned in the formation of each of the three primary hæmorrhoids. The blood-vessels supplying both the internal and its corresponding external hæmorrhoid lie in the submucous layer under the fold of pink rectal mucosa forming the "pile pedicle." Here a pulsating artery can be palpated and the large returning vein seen through a proctoscope.

Subjacent to the anal mucosa (in the submucous space) are the veins that form the *internal hæmorrhoidal plexus* (Fig. 2). These vessels, together with a variable

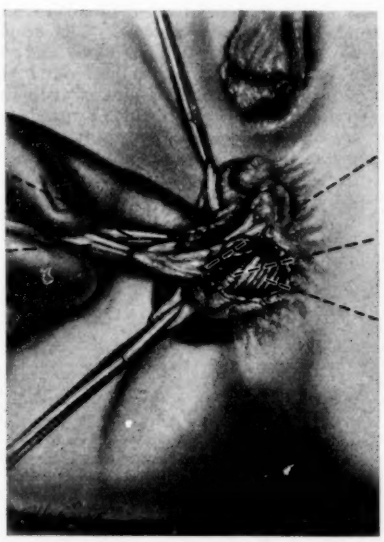


FIG. 8.—Skin cut with dissection of external hæmorrhoidal plexus completed. The method of holding skin and pedicle forceps is shown.

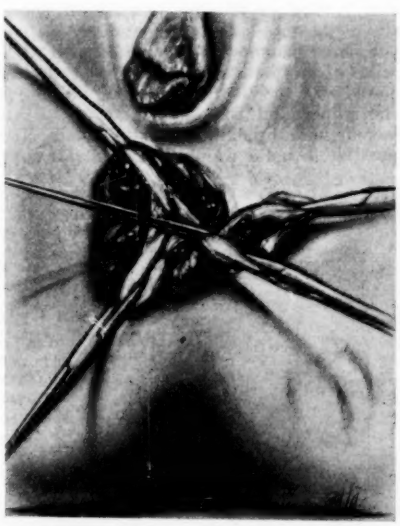


FIG. 10.—Ligature applied to pedicle of left lateral hæmorrhoid.

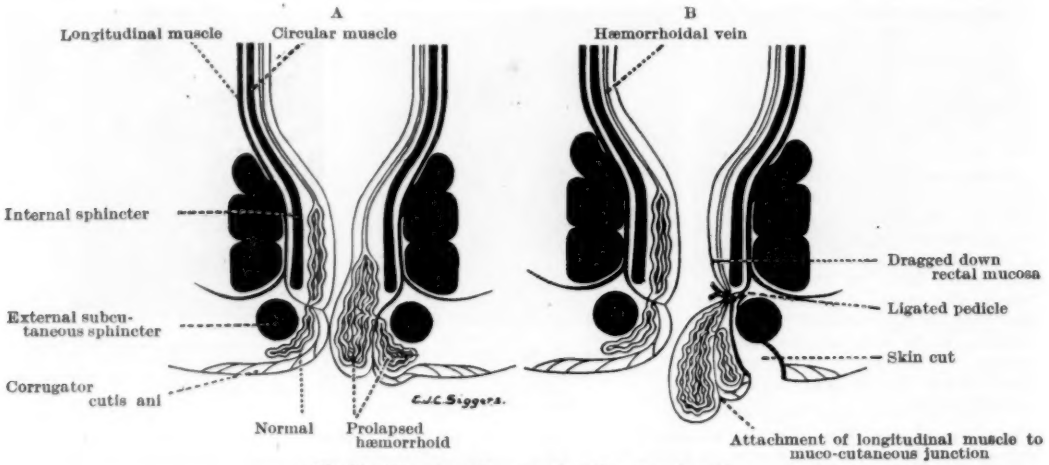


FIG. 11.—Diagrammatic coronal section of anal canal.
A. Normal (on the left) and prolapsed hæmorrhoids. B. Skin cut and ligation of pile pedicle.

amount of fibrous tissue, make the internal hæmorrhoid. This plexus is limited below by the attachment of the longitudinal muscle through which, vascular channels communicate with the external hæmorrhoidal plexus below.

The *external hæmorrhoidal plexus* lies entirely within the peri-anal space. When its blood return is obstructed during surgical exposure or prolapse of the internal primary hæmorrhoids, or on straining, its vessels become distended and its boundaries and extent defined (Fig. 6). When the anus is at rest, the plexus may not be apparent. It may therefore be fairly assumed that nearly all the blood from the external hæmorrhoidal plexus passes upwards and drains into the superior hæmorrhoidal veins through the internal plexus. It will be noted that the fortunes of the internal pile and the corresponding segment of the external hæmorroidal plexus are thereby closely bound together. Some evidence of this is seen in the frequency with which there are three tags of skin corresponding in position with the three primary internal piles (Fig. 3). These are relics of daily engorgement or past thrombosis, associated with repeatedly prolapsing internal piles. Both the upper and the outer margins of the external hæmorrhoidal plexus are well defined. It is therefore possible to make an almost avascular cut with a pair of scissors through the skin at these margins. A deep cut at the upper margin causes the plexus to collapse because the supplying vessels that pierce the longitudinal muscle are thereby opened. An incision at the outer margin exposes and defines the distended edge of the plexus and at operation ensures its complete removal (Fig. 6).

The internal hæmorrhoid is covered by insensitive fragile anal mucosa so that the submucous hæmorrhages in this region are uncommon and painless. A similar hæmorrhage from the external hæmorrhoidal plexus into the subcutaneous tissues is extremely painful because it is covered by the sensitive tough anal canal and peri-anal skin. These subcutaneous hæmorrhages and thromboses from the external hæmorrhoidal plexus may be of two distinct types. The first type is associated with prolapsing internal hæmorrhoids and situated in relation to the primary hæmorrhoid involved. They are the result of straining or blockage of blood return in overdistended but normal vessels. The second type is due to spontaneous hæmorrhage and thrombosis which may occur at any point round the anus in the external hæmorrhoidal plexus even in the interhæmorrhoidal area. Friable blood-vessels are probably the cause, since the accident is not associated with prolapsing internal hæmorrhoids and often occurs

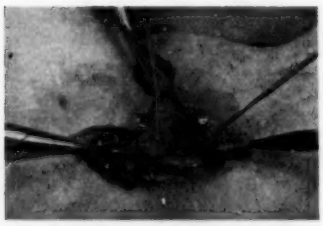


FIG. 12.—The "triangle of complete removal of piles." The three primary piles dissected and pedicles ligated. Note the intact interhæmorrhoidal areas.

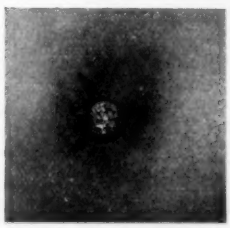


FIG. 13.—Appearance of anus and the three radiating skin incisions after the ligated and removed primary piles have been reduced by inserting gauze into the anus. Each skin wound is now trimmed to prevent post-operative skin tags.

FIG. 15.—Completion of operation. Appearance of anus with the three skin wounds dressed with gauze and tube inserted.

apart from straining. The blood clot in this type does not extend upwards through the longitudinal muscle septum but is confined to the peri-anal space and the complete clot may be easily excised.

The Operation

Application of the surgical anatomy to the operation of hæmorrhoidectomy makes it now possible to present a clear and accurate description of technique.

EXPOSURE OF THE HÆMORRHOIDS

With the anæsthetised patient in the lithotomy position one or more of the primary hæmorrhoids tend to prolapse. The tag of skin corresponding with the hæmorrhoid showing the greatest tendency to prolapse is grasped with dissecting forceps and drawn laterally, away from the anus. This tension causes the anal mucosa covering the internal hæmorrhoid to appear outside the anal canal. The hæmorrhoid is now grasped and further traction brings into view a longitudinal fold of rectal mucous membrane. This rectal fold is caught with artery forceps—the "pedicle forceps" (Fig. 7). (It is only when the forceps is applied to the anal mucosa that the hæmorrhoid is delivered and its pedicle seen. If a forceps be placed on either the skin of the anus or the attachment of the longitudinal muscle, the pile is not fully delivered. In the former instance

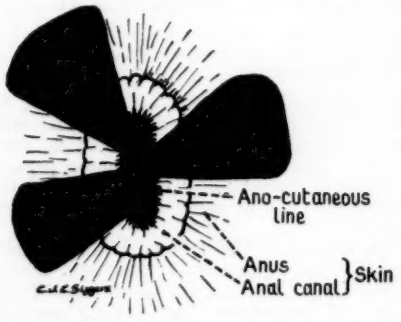


FIG. 14.—Flat open wound left after cutting away redundant skin.

its force is transmitted to the insertion of the longitudinal muscle and in the latter case to the anal musculature only.) These forceps are handed to an assistant, who retracts with tension in the radial axis of the hæmorrhoid. The remaining two hæmorrhoids are delivered in a similar manner, so that now all three pedicles are seen emerging radially in positions corresponding with the three primary hæmorrhoids (Fig. 7). Passing from each pedicle to its neighbour there will be seen a connecting fold of rectal mucous membrane recognisable by its colour. The three folds form a triangle with the pedicle at each angle. This triangle is known as the "triangle of exposure" because only when it is present have *all* the hæmorrhoids been *fully* exposed in preparation for the further steps of the operation.

DISSECTION

With the tip of an index-finger in the anal canal exerting steady pressure outwards at the level of the subcutaneous external sphincter, the pedicle forceps of the first hæmorrhoid to be dissected is held in the palm of the same hand. (The left index-finger is used for the left lateral and right anterior hæmorrhoids, the right index-finger for the right posterior hæmorrhoid.) An artery forceps—the "skin forceps"—is now applied to the skin over the distended external hæmorrhoid. The skin forceps is also placed in the palm of the hand together with the pedicle forceps and traction exerted inwards on the skin forceps (Fig. 8).

With scissors, two cuts are now made in the skin of the anus, one on either side of the skin forceps and extending from the anocutaneous line to the outer border of the distended external hæmorrhoidal plexus (Fig. 9). The incisions are made to meet at their outer extremities, thus outlining a V-shaped section of tissue over the external

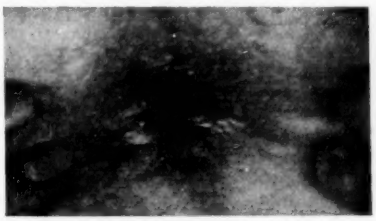


FIG. 16.—The three healed skin cuts 14 days after removal of hæmorrhoids.

hæmorrhoidal plexus. The incisions are extended through the corrugator cutis ani until the circular band of the subcutaneous external sphincter is laid bare (see Fig. 5). Starting at the apex of the V the tissues are dissected away from the subcutaneous external sphincter until the inner border is exposed, where the fibres of the longitudinal muscle may be seen. Included in the tissue dissected away will be skin, fibres of corrugator muscle, and that part of the external hæmorrhoidal plexus corresponding with the hæmorrhoid being removed (see Figs. 8 and 11B).

LIGATURE OF THE PEDICLE

The dissection having been completed, the entire hæmorrhoid—that is, the internal and external hæmorrhoidal plexuses with their coverings of anal mucosa and skin of anus—swings free on its pedicle. This pedicle consists of rectal mucous membrane, submucosa containing a branch of the superior hæmorrhoidal artery and vein, and part of the longitudinal muscle. An assistant now exerts traction on both pedicle and skin forceps directly outwards from the anus, while a No. 16 hollow-woven silk ligature is tied very tightly around the pedicle above the pedicle forceps. The knot is tied on the mucous membrane (Fig. 10). A ligature thus applied cannot slide upwards because it is fixed by the included longitudinal muscle (Fig. 11 A and B). The forceps and ligature are now taken by an assistant and held in the radial axis of the hæmorrhoid.

Dissection and ligature of the first hæmorrhoid having been completed, the two remaining hæmorrhoids are dealt with in a similar manner (Fig. 12). In making the cuts for dissection of these latter, care must be taken to leave intact at least a quarter of an inch of anal mucous membrane and skin between the wound of each hæmorrhoid for purposes of regeneration.

FINAL STAGES

The excess tissue distal to the ligature is now excised and the ligatures cut short. By inserting a length of gauze into the anal canal, the ligated pedicles are returned to their places in the anal canal, and all that is to be seen are three radiating narrow wounds in the anal skin (Fig. 13). These wounds have loose overhanging edges which are cut away to make a flat open wound without redundant skin (Fig. 14).

The operation is completed by inserting a vaseline coated rubber tube into the rectum. This tube is half an inch in diameter and about three inches in length. Squares of wet gauze are tucked into the anal canal beside the tube in relation to each wound (Fig. 15). Over these dressings is placed a pad of wool kept in place by a T-bandage.

SECONDARY HÆMORRHOIDS

All except the anterior and posterior secondary hæmorrhoids can be included in the ligatures of the primary hæmorrhoids. These secondary hæmorrhoids, if present, are found directly anteriorly and posteriorly

and lie below the triangle of exposure between the left and the right hæmorrhoids. A skin cut is made, leaving intact skin on either side as in primary hæmorrhoids. The strangulating ligature does not go higher than the triangle of exposure as a secondary hæmorrhoid has no rectal pedicle.

COMMENT

The advantages claimed for the removal of hæmorrhoids by the method described are:

1. The ligature is definitely applied above the hæmorrhoid and therefore the whole is removed—a distinct safeguard against recurrence.

2. The ligature is held down by being applied round both the longitudinal muscle and the pile pedicle, below the internal sphincter. This avoids retraction of the pedicle upwards with resulting extensive "raw" areas in the anal canal which may lead to stricture formation at the site of the ano-rectal ring.

3. Areas of anal mucosa and skin are left intact between each wound from which regeneration successfully takes place. This is essential in order to prevent the more painful and difficult stricture formation at the anus.

4. Accurate removal of portions of the external hæmorrhoidal plexus, together with trimming of the resulting wounds, considerably minimises post-operative skin œdema and the formation of skin tags (Fig. 16).

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BLOOD TRANSFUSION IN THE TREATMENT OF BLACKWATER FEVER

BY W. K. BLACKIE, M.D., Ph.D., M.R.C.P. Edin., D.T.M. & H.

DIRECTOR OF THE PASTEUR INSTITUTE, SALISBURY, SOUTHERN RHODESIA

IN assessing the value of any line of therapy in blackwater fever due attention must be paid to the average mortality-rate from the disease in any given area. Fortunately in Southern Rhodesia, where blackwater fever has been the subject of considerable investigation, statistics relating to the fatality-rate associated with the disease are readily available. Thus Thomson (1924) records an average rate of 23·53 per cent. in a series of 1058 cases, while Ross (1932) estimates a 22·20 per cent. death-rate in 679 cases. A closer study of the figures quoted by Thomson and Ross reveals the fact that significant fluctuations in the fatality-rate occur from year to year, a fact which complicates still more the statistical evaluation of any method of therapy. The following discussion, therefore, makes no claim to be a statistical study of the value of blood transfusion in the treatment of blackwater fever but constitutes a simple clinical study (which has extended over a period of five years) of the application of blood transfusion to the therapeutics of this disease.

While facilities are not available for a study of all that has been written on the subject, it appears that blood transfusion has been employed in blackwater fever in various parts of the world. The procedure is referred to by Scheffer (1919), Coenen (1919), Manson-Bahr and Sayers (1927), Low, Cooke, and Martin (1928), and others, but it is still felt that workers in the tropics could with advantage make more extended use of blood transfusion in the treatment of blackwater fever.

It may be said at the outset that blood transfusion is not indicated in every case of blackwater fever and in no instance does it warrant the neglect of those other therapeutic measures such as rest, warmth, and a sufficiency of alkaline fluids which are essentially a feature of all forms of blackwater fever therapy.

CLINICAL TYPES

In order to simplify the discussion relating to the indications for transfusion it is proposed at this stage to deal with the clinical types of the disease as met with in Southern Rhodesia. Ross (1932) recognises four clinical types: (1) the mild to moderate uncomplicated type; (2) the fulminating and toxic type; (3) the anuric type; (4) the continued and intermittent type. While this classification can be justified readily enough on clinical grounds, it is felt that for the purpose of arriving at the clinical indications for blood transfusion a simpler classification may be postulated. For this purpose blackwater fever may be classified as follows:—

1. The mild type.
2. The toxic type: (*a*) polyuric, (*b*) anuric.
3. The relapsing type.

The *mild type* shows a well-marked initial hæmoglobinuria associated with a mild pyrexial reaction, occasional vomiting, slight icterus, and no tendency to anuria. The hæmoglobinuria, most pronounced at the onset of the attack, gradually clears with each successive specimen of urine and complete recovery is the rule.

In the *toxic type* the attack is ushered in by a severe rigor, the temperature rises to a high level, while vomiting, tachycardia, shallow, rapid breathing with general restlessness and anxiety are characteristically present. The urine is heavily pigmented from the onset and icterus soon becomes very pronounced. In other words there is abundant evidence of severe hæmolysis in association with a severe toxæmia.

The subdivision of the toxic type into a polyuric and an anuric group is of fundamental importance, from the viewpoint of blood transfusion therapy. In the former large quantities of urine are passed at frequent intervals, each specimen remaining heavily pigmented and charged with acetone, and in this type of case the massive hæmolysis may result in death within the first 24 hours. In the anuric group the volume of urine passed rapidly diminishes until a state of complete or almost complete anuria supervenes.

Finally in the *relapsing type* the urine clears and darkens alternately over a period of a week or more as a result of recurring bouts of hæmolysis. Pyrexia persists throughout the attack, icterus is well developed, but there is seldom evidence of severe toxæmia. There appears to be no tendency to suppression of urine in such cases, but the recurrent hæmolytic attacks may reduce the red cell counts to dangerously low levels.

INDICATIONS FOR BLOOD TRANSFUSION

The mild type of blackwater fever is readily recognised by reason of the freedom from severe systemic disturbance in conjunction with a rapidly clearing urine. In such cases the prognosis is good

and recourse to blood transfusion unnecessary. In the toxic type of case the procedure to be followed is largely determined by the presence or absence of anuria.

It may be said at once that, in my opinion, blood transfusion is definitely contra-indicated in the anuric case. In these the transfusion appears to aggravate the condition and certainly has never been found to improve the urinary secretion. In the toxic polyuric type of case, on the other hand, with its associated severe hæmolysis, blood transfusion is always of value. While there is no evidence to show that transfusion has any material effect in reducing the period of hæmolysis, it not only counteracts in great measure the tendency to the development of a severe grade of anæmia but inter alia gives the patient a feeling of confidence and well-being which proves invaluable in dealing with a disease possessed of such sinister reputation. In the relapsing type the recurring hæmolysis may lead to an anæmia of such gravity that death results from asthenia. In such cases blood transfusion has repeatedly proved a life-saving measure even when, as on one occasion, the red cell count had fallen to 975,000 cells per c.mm. with a hæmoglobin of 22 per cent. (Newcomer) and a reticulocyte count of 4·4 per cent.

Finally in some cases a state of asthenia follows an attack of blackwater fever. The patient feels weak, exhausted, and languid, and appears indifferent to the question of ultimate recovery. The effect of one or more small blood transfusions in such cases is to produce a striking improvement in the patient's general condition and a rapid return to health.

HÆMATOLOGICAL GUIDES

Full hæmatological data not only supply useful supplementary information in determining when to transfuse but they also serve as a guide to how much blood to give and how often it need be given. Thus blackwater fever may occur in a patient whose blood is already in a subnormal state through some other anæmising influence, and in such a case the hæmatological data would reveal a need for transfusion not necessarily suspected on ordinary clinical grounds.

In the toxic and relapsing types of case the main value of the blood findings is to indicate when the transfusions may be discontinued. It has been found (Fairley 1934, Blackie 1935) that during the period of active hæmolysis the erythropoietic activity of the marrow is depressed and the red cell count may continue to fall without any effort being made to restore it to normal values. But when the hæmolytic phase of the disease is over an active reticulocytosis occurs and once established the regeneration of the blood may safely be left to the erythropoietic marrow, which as Fairley (1934) has shown is usually hypertrophied from recurrent attacks of malaria. Slavish adherence to actual red cell counts as a guide to transfusion is, however, not advocated, but the broad principle may be adopted that a count of 2,500,000 to 3,000,000 with a reticulocyte count of 5 per cent. or less warrants blood transfusion in blackwater fever, while a rapidly increasing reticulocytosis in association with an improvement in the count serves as an indication that transfusion may be discontinued. In all cases of course the hæmatological findings are interpreted in conjunction with the clinical condition of the patient.

TECHNIQUE

The method I use consists in the administration of citrated blood by means of a tube and funnel and a Keynes's blood transfusion needle. While it is sometimes stated that the administration of citrated blood is contra-indicated in conditions associated with intravascular hæmolysis, on account of a tendency to increase the fragility of the red cells, there is no evidence that the hæmolysis in blackwater is associated with an increased fragility of the red cells nor is there evidence to suggest that the transfusion of compatible blood serves in any way to prolong the hæmolytic phase of the disease. Furthermore, in the toxic polyuric type of case there is commonly evidence of a lowered alkali reserve, hence the transfusion of well-citrated blood is theoretically preferable to whole blood, although no opportunity occurred in the course of the present study of comparing the relative efficacy of the two methods of transfusion. Under tropical conditions the simplicity of the apparatus required for indirect transfusion is another important factor in determining the preferential use of this method and finally the citrate method permits of blood being collected at a central hospital and transported to some remote part of the colony where it can be administered to cases too ill to be moved. While this procedure is open to criticism on theoretical grounds the success with which it has been attended in this country has been so impressive that the majority of practitioners have come to look upon blood transfusion as an essential part of the treatment of every severe case of blackwater fever. It may be added that where blood transfusion was carried out at some distance from a hospital centre blood from a universal donor was invariably used.

The rules that govern the technique of blood transfusion must be rigidly followed in the treatment of blackwater fever if severe and distressing reactions are to be avoided.

The practice here is to employ sterile tap water in preference to distilled water in making up the sodium citrate solution. The solution is used in a strength of 3·8 per cent., 10 c.cm. being added to every 100 c.cm. of blood. Direct compatibility tests are also insisted upon in addition to routine grouping of donor and recipient. Elaborate care is taken to prevent cooling of the blood after collection and during the transfusion process, and the patient is maintained in a warm and comfortable condition. While cold-agglutinins have not been demonstrated in blackwater fever the fact that auto-agglutination of the red cells has been observed suggests that these precautions may serve to minimise this danger. The blood is given slowly and the total volume of citrated blood administered at any one time varies between 350 and 450 c.cm.

It was soon found that a volume of blood much in excess of this amount tended to give rise to evidence of circulatory strain and on one occasion a transfusion of 600 c.cm. of blood given to a moribund case precipitated an acute œdema of the lungs. The number of transfusions necessary is largely determined by the hæmatological findings. As already stated a vigorous reticulocytosis in association with a rising red cell count serves to indicate when the transfusions may be discontinued.

By careful observance of the foregoing technique post-transfusion reactions have been few and insignificant, consisting in an occasional mild rigor occurring within a few minutes of the cessation of transfusion and readily controlled by the subcutaneous injection of ℥ 5 of 1/1000 adrenaline, supplemented with a few hot-water bottles. It is of interest to note that the reactions have been mainly in cases transfused with blood collected and citrated at a central hospital and transported several miles afterwards.

RESULTS

The foregoing comments are based on an experience of blood transfusion in approximately 50 cases of blackwater fever, but in 22 cases only was the treatment controlled personally throughout the whole of the illness. It is not proposed to make an elaborate statistical analysis of these 22 cases, but by separating them into their clinical types the value and the limitations of blood transfusion in this disease becomes more apparent.

In the Table the cases have been placed in two main categories—those treated in hospital and those treated under the conditions that prevailed in the patient's own home in a country district. Under hospital conditions blood transfusion was supplemented by those routine measures employed in all cases of blackwater fever, but in many of the country cases the blood transfusion was very inadequately supported by such measures. In the hospital cases the initial red cell counts have been inserted in order to indicate in some measure the severity of the attack. In the country cases, however, such evidence cannot be supplied, although it may be said that one was never called except to severe cases of the disease.

EFFECTS OF BLOOD TRANSFUSION

Clinical type.	Case No.	Initial R.B.C. in millions.	Reticulocytes, per cent.	Transfusions.	Result.
		Hospital Cases			
Polyuric.	1	2·7	0·8	3	Recovery.
	2	2·4	5·0	2	„
	3	3·9	..	1	„
	4	2·5	..	1	„
	5	2·7	3·8	1	„
	6	3·5	1·4	1	„
	7	1·8	2·4	3	„
	8	3·5	3·1	1	„
	9	3·0	1·0	1	„
	10	2·1	2·2	3	„
Relapsing.	11	1·1	0·9	3	„
	12	2·6	1·2	4	„
	13	1·6	1·0	2	„
Anuric.	14	3·1	1·2	1	Death.
	15	3·2	1·0	1	„
		Country Cases			
Polyuric.	16	..	..	1	Recovery.
	17	..	..	1	„
	18	..	..	2	„
	19	..	..	1	„
	20	..	..	1	„
	21	..	..	1	„
Anuric.	22	..	..	1	Death.

The cases have all been classified in accordance with the grouping given at the beginning of the paper and it will be seen that 16 have been placed in the toxic polyuric group, 3 in the anuric group, and 3 in the relapsing group. When the results of treatment are considered the striking fact emerges that whereas all the polyuric and the relapsing cases survived each of the anuric cases died. Indeed the deterioration in the anuric patient's condition following blood transfusion soon led to the discontinuance of this measure in the treatment of such cases.

It is also of interest to note that the recovery rate amongst cases treated by blood transfusion under country conditions compares very favourably with the recovery rate amongst hospital cases. This fact serves in great measure to reflect the intrinsic value of blood transfusion in this disease, since as already indicated accessory therapeutic measures can seldom be carried out in detail in the more remote country districts.

CONCLUSIONS

Blood transfusion has been systematically employed in the treatment of blackwater fever in Southern Rhodesia over a period of five years. Even after due allowance has been made for the fluctuations in the fatality-rate from year to year, it is felt that blood transfusion is an important life-saving measure in this disease.

It is important to realise, however, that if full value is to be derived from this line of therapy it must be instituted in the early stages of the disease and not delayed until the patient is moribund. During the hæmolytic phase the body may be in considerable need of an emergency supply of red cells and, since there is evidence to show that the erythroblastic activity of the marrow is in abeyance at this time, the necessity for early transfusion is apparent.

Secondly, the transfusions must be repeated until there is hæmatological evidence of active erythropoiesis. While there is no evidence to show that blood transfusion shortens the hæmolytic phase of the disease there is equally no indication that it serves in any way to aggravate or prolong the hæmolysis. On the other hand, the demonstrable benefits accruing from blood transfusion are such that the immediate effect on the active phase of the disease need not be regarded as a major consideration.

Finally, while blood transfusion is not indicated in every case of blackwater fever it is predominantly useful in the toxic polyuric and in the relapsing type of case and in post-blackwater asthenia, whereas it is definitely contra-indicated in toxic anuric blackwater.

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ROYAL NORTHERN HOSPITAL, LONDON. — On Oct. 26th the Duchess of Gloucester opened the new pathological, bacteriological, and biochemical department at this hospital which is to be known as the Beecham laboratories. The new department has cost £14,200. Last year the Duke of Gloucester appealed for £350,000 to erect an extension to the hospital and so far £120,000 has been received in gifts and promises.

THE NEWER ELECTROCARDIOGRAM DENOTING RIGHT BUNDLE-BRANCH BLOCK

BY WILLIAM EVANS, M.D., F.R.C.P. Lond.
ASSISTANT PHYSICIAN TO THE LONDON HOSPITAL
(*From the Cardiac Department, the London Hospital*)

With Pathological Report by

HUBERT M. TURNBULL, D.M. Oxon., F.R.C.P. Lond.
DIRECTOR OF THE BERNHARD BARON INSTITUTE OF PATHOLOGY, THE LONDON HOSPITAL; PROFESSOR OF PATHOLOGY IN THE UNIVERSITY OF LONDON

THE interpretation of electrocardiograms indicating bundle-branch block has become confused because of disagreement on the form of the curve that allocates the lesion to one branch or the other. In 1914 deductions from experiments on dogs (Lewis and Rothschild 1914, Lewis 1915) were applied to the abnormal electrocardiogram in man and a curve typifying delayed conduction in the bundle of His (the auriculo-ventricular bundle) was specified for each branch. As records accumulated it became evident that faulty conduction ascribed to the right branch was more frequent than that ascribed to the left. The anatomical distribution of the main divisions of the bundle was held to explain the preponderance of right over left branch involvement because the right branch is long and thin and does not divide early, while its blood-supply is derived from a single arterial twig; the left branch is short and broad, it branches early and has a more liberal blood-supply.

NOMENCLATURE

It was Fahr (1920) who first doubted the accuracy of the nomenclature applied to bundle-branch block. Using the equilateral triangle method devised by Einthoven, he attempted to analyse the propagation of the wave of electronegativity in the human heart, and concluded that the diagnosis of right and left bundle-branch block as hitherto described was incorrect. He said that in *left* bundle-branch lesion a tall R wave was expected in lead I and a deep S wave in lead III; and that in *right* bundle-branch lesion the S wave should be deep in lead I and the R wave tall in lead III. Wilson and Hermann (1920) after dividing the separate branches in dogs were able to obtain tracings which supported Fahr's contention. A patient in whom pericardiostomy had been performed for suppurative pericarditis gave Barker and his co-workers (1930) the opportunity of studying the form of the electrocardiogram obtained from direct electrical stimulation of different parts of the heart. Their careful and valuable work led them to conclude that the electrocardiogram hitherto ascribed to interruption in the *right* branch of the bundle, indicated interruption in the *left* branch, and vice versa. Wilson, Macleod, and Barker (1932) observed the effects of division of the branches of the bundle in the dog, and they also studied human electrocardiograms obtained by serial precordial leads in cases with bundle-branch block. They concluded that the new left bundle-branch block curve was the common one and that the new right bundle-branch block curve was rare.

Although the new nomenclature is now dominant, it has not yet received universal acceptance because the alleged higher incidence of left bundle-branch lesion cannot be explained by the peculiar anatomical course and blood-supply of the separate branches of the bundle. Wilson, Johnston, Hill, Macleod, and Barker (1934) reminded us that our ideas regarding the frequency of the two varieties of bundle-branch block depend largely on the criteria set up for the graphic diagnosis of these lesions, and that right and left bundle-branch block are far more common than believed.

For the last five years I have noticed a distinctive electrocardiogram among patients attending the Cardiac Department of the London Hospital. I found reports of comparable curves, but there appears to be no agreement on the significance of the tracing; thus it has been variably referred to as *intraventricular block* (White 1937), *incomplete bundle-branch block* (Willius 1929), and *atypical bundle-branch block* (Pardee 1933, von Deesten and Dolganos 1934).

Pezzi (1933) has made the novel suggestion that it is inversion of a P wave following the R wave that gives the tracing a false appearance of a bundle-branch block curve. Recently Battro and others (1936) by synchronously recording the apex-beat, the venous pulse, the heart sounds, and the electrocardiogram, found evidence of the left ventricle contracting before the right ventricle in one of three cases showing this newer curve of right bundle-branch block.

Wilson and his colleagues (1934) exhibited the curve of which I had assembled 12 examples among 3840 consecutive and routine electrocardiograms, and they ascribed it to a lesion of the right branch of the bundle. In the same series I found only two curves of *standard* type for right bundle-branch block (Fig. 1).

In this paper the electrocardiograms obtained from these 14 patients are described and considered in relation to the clinical history, and in two cases to the findings at necropsy. From a consideration of the form of the curve alone it is possible to differentiate the electrocardiograms into two types. The first curve is rare and the second is common.

THE RARE CURVE

The curve hitherto standard for right bundle-branch block (new nomenclature) was only found in two patients (Figs. 1 and 2a and 2b). In this curve the *S wave is dominant in lead I and the R wave is moderately tall in lead III. The Q R S complex, or initial ventricular deflection, is wide and followed by a T wave directed away from the Q R S.* This curve is graphically the counterpoise of the curve indicating left bundle-branch block (new nomenclature) (Fig. 3) of which there were 17 examples in this series, each showing all the accepted characteristics. As in the case of right bundle-branch block so also for left bundle-branch block a curve differing in form from the one now regarded as standard may be described, but the features of such a curve are outside the scope of this paper.

The incidence of the curve denoting right bundle-branch lesion has also been found to be small by other writers although greater than in the present series. Thus White (1931) found 36 examples of right and 176 of left bundle-branch block among 9000 routine electrocardiograms at the Massachusetts General Hospital, and Graybiel and Sprague (1933) in another series found 125 instances of left bundle-branch block and 29 of right bundle-branch block.

At necropsy in Case 1 there proved to be two cardiac infarcts each affecting a portion of the interventricular septum so that no inference can be drawn from macroscopic examination as to which injured branch of the bundle produced this particular curve. The findings only show that either one or both types of bundle-

branch block could have been present, but examination of serial sections of the bundle was not attempted.

Possibly idioventricular rhythm in Case 2 originated variably from two sources, each adjacent to one of the branches of the bundle, so that the spread of the impulse was delayed in one or other branches according to the source of the impulse. The occurrence of two distinct curves typifying a lesion in the right or left branch would thus be explained.

SUMMARY OF CASES

CASE 1.—Male aged 50. Cardiac infarction.

An initial attack of cardiac infarction was followed by severe angina pectoris (angina of effort); a second attack occurred three weeks later. When admitted to hospital the patient complained of continuous retrosternal pain. The blood pressure was 100/85 and a pericardial friction sound was heard. He died three weeks after the second attack of cardiac infarction. *Electrocardiogram* was taken 16 days after onset of second attack of cardiac infarction (see Fig. 1). This case was mentioned by Parkinson and Bedford (1927) and the curve is shown in fig. 29 of their paper.

Necropsy showed heart failure, infarction of myocardium, thrombosis in stenosed atheromatous coronary arteries.

There was moderate cardiovascular hypertrophy; weight of heart, 14¼ oz. Wall of right ventricle, 0·4 cm. thick. Wall of left ventricle, 1·45 cm. thick. Fine fibrous adhesions over whole of visceral pericardium. Mottled reddish-brown and yellow infarction of lower three-fourths of anterior wall of left ventricle including left side of interventricular septum, apex, and margo obtusa. Granular ante-mortem thrombus in right auricle, especially around margin of fossa ovalis. Very thin (0·3 cm. thick) interventricular septum. Severe coronary atheroma. Confluent fatty and calcareous buttons in anterior descending coronary, right horizontal, and proximal 3·0 cm. of left horizontal. Great stenosis of lumen of anterior descending coronary, 1·0 cm. from origin, with small adherent granular thrombus in stenosed portion. Small recent red thrombus in stenosed portion, 3·0 cm. from origin of anterior descending coronary. Recent red granular thrombus filling right coronary for distance of 5 cm., commencing 1·0 cm. from its origin; oldest portion being distal and beyond margo acuta. Stenosis of left horizontal coronary, 2·0 cm. from its origin without occlusion by thrombus.

CASE 2.—Male aged 39. Adams-Stokes' syndrome; complete auriculo-ventricular block.

Suffered from attacks of transient unconsciousness for many months. Pulse slow (36 per minute) and regular. Blood pressure 135/90. No evidence of heart failure. Cardioscopy showed slight enlargement of the heart, chiefly of right auricle and left ventricle. *Electrocardiograms.*—See Figs. 2a and 2b. Ephedrine increased pulse-rate to 40 per minute and patient remained free from symptoms.

THE COMMONER CURVE

The commoner curve, regarded in this paper as denoting right bundle-branch block, shows *a deep S wave as a component of a wide Q R S complex in lead I and also in lead II as a rule. The T wave is upright in leads I and II and is usually inverted in lead III.*

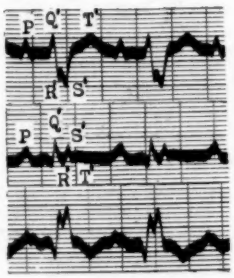

FIG. 1 (Case 1).—Standard curve for right bundle-branch block. In this and other tracings leads I, II, and III are shown, and the lettering Q, R, S, and T is used for convenience and without assuming that the designated waves are comparable with those of the normal electrocardiogram. The main vertical divisions represent 1/5 sec.

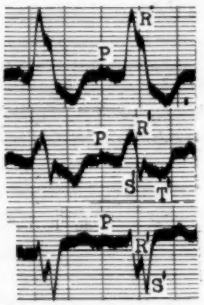

FIG. 3.—Left bundle-branch block for comparison with Fig. 1.

The Q R S complex may be upright in lead III (Figs. 4, 5, 6, and 15), but more often it is directed downwards (Figs. 7 to 14). The curve is almost identical with that obtained by Roberts and his co-workers (1932) following division of the right branch of the bundle in the cat.

In no instance in this series was the abnormal electrocardiogram the only evidence of heart disease and some other indication of heart damage was always present. Thus auriculo-ventricular block occurred in 4, hyperpiesia in 4, auricular fibrillation in 2, mitral stenosis in 2, angina pectoris in 2, congenital heart disease in 2, and atheromatous aortic stenosis in 1. Heart failure was present in 8 patients. The frequency with which auriculo-ventricular block supervened on this characteristic curve is significant though without conclusive explanation. It may mean that the commencement of the right branch of the bundle is more susceptible to disease and that the proximity of the lesion and its extension to the main stem of the bundle would explain the frequent association of auriculo-ventricular block with this newer curve.

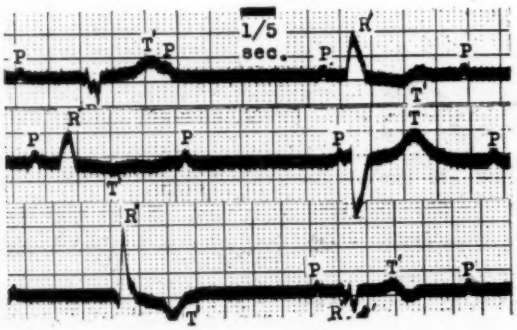

FIG. 2a (Case 2).—Q R S complexes characteristic of both right and left bundle-branch block are present. The rate is slow (33 per minute) and the rhythm is abnormal (complete auriculo-ventricular block).

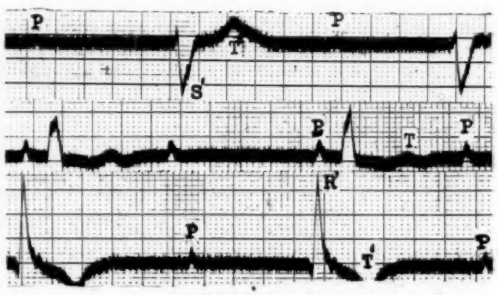

FIG. 2b (Case 2).—Ventricular complexes characterise the standard curve for right bundle-branch block. The rate is slow (30 per minute) and the rhythm is abnormal (complete auriculo-ventricular block).

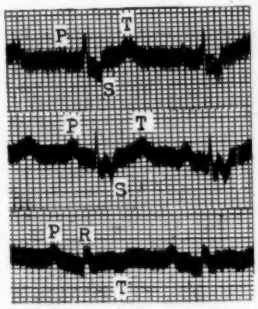

FIG. 4 (Case 3).—The S wave is deep in leads I and II and the Q R S complex is wide in all leads. The T wave is inverted in lead III.

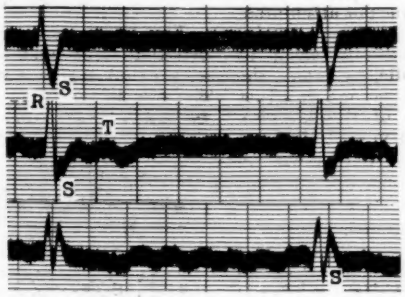

FIG. 5 (Case 4).—The S wave is deep in leads I and II and the Q R S wide in all leads. The T wave is inverted in lead III and diphasic in lead II. The ventricular rate is slow (43 per minute) and the rhythm is abnormal (auricular fibrillation with prominent "f" waves, and idio-ventricular rhythm).

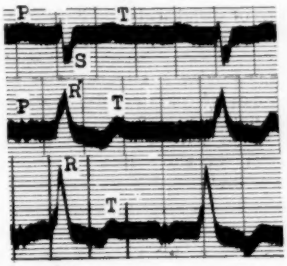

FIG. 6 (Case 5).—The S wave is deep and slurred in lead I and the Q R S complex is wide in all leads. The T wave is inverted or diphasic in lead III and the P wave is inverted in the same lead. The R–T segment is depressed in leads II and III, but the patient was not taking digitalis. The P–R interval is prolonged.

Although analysis of the incidence of other cardiac lesions determined by clinical examination of the 12 patients in this group obviously cannot prove that this characteristic electrocardiogram denotes a lesion in the right branch of the bundle, yet the clinical findings are in agreement with its presence. Corroborative evidence is awaited from microscopical examination of the conducting tissue in cases presenting this curve during life. Certainly in Case 7 microscopical examination of serial sections showed destruction at different levels in the trunk of all fibres presumably destined for the right branch and also a complete intersection of the right branch; there was also destruction of fibres of the left branch within the trunk, but a group passed without interruption from the node to the left ventricle.

Hall (1931) published a similar electrocardiogram to that obtained in Case 14.

His patient, a male aged 68 years, showed left bundle-branch block at the first examination. A later tracing showed complete auriculo-ventricular block and the form of the ventricular complexes had changed, so that the S wave had become deep and wide in leads I and II, and the T wave had become upright in lead I and inverted in lead III.

Hall postulated that the affected branch of the bundle was insensitive to supraventricular impulses and that these were cut off and idioventricular rhythm had been established; the breach of continuity in the branch became of no consequence provided the lesion was placed high enough in the bundle-branch.

Although this newer curve indicating right bundle-branch block was never seen in the absence of clinical evidence of heart disease, it is likely that the curve does not by itself indicate an unfavourable prognosis, so that this must be judged by the severity of the existing heart damage assessed by other means. In this connexion Wood and others (1935), from their study of 64 patients with a right bundle-branch conduction defect which included some with features of the curve described here, found that a smaller percentage of them had serious heart disease than papers on this subject would lead one to expect.

SUMMARY OF CASES

CASE 3.—Female aged 16. Congenital heart disease (type not specified).

Said to have a weak heart since birth and was always discouraged from walking too far or too quickly. No clubbing of fingers and no cyanosis. Apex-beat displaced outwards but considerable lower thoracic scoliosis present. Duplication of 1st sound (widely separated) in mitral area. *Electrocardiogram.*—See Fig. 4.

CASE 4.—Male aged 64. Heart failure; auricular fibrillation; complete auriculo-ventricular block; mitral stenosis. Recent onset of heart failure. Blood pressure 180/100. *Electrocardiogram.*—See Fig. 5.

CASE 5.—Female aged 54. Heart failure; congenital heart disease (type not specified).

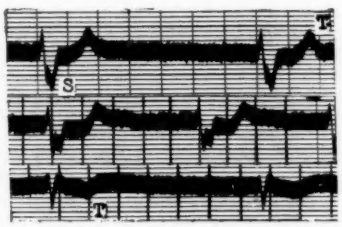

FIG. 7 (Case 6).—The S wave is deep and the Q R S complex wide in leads I and II. The T wave is inverted in lead III. The rhythm is abnormal (auricular fibrillation). The patient was not taking digitalis.

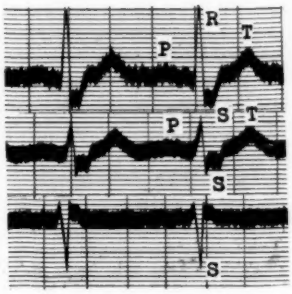

FIG. 8a (Case 7).—The S wave is deep and the Q R S complex wide in leads I and II. The T wave is flat in lead III. There is left electrical axis-deviation.

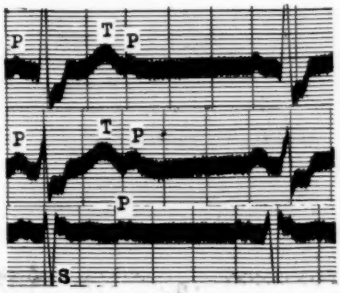

FIG. 8b (Case 7).—The changes are similar to those described in Fig. 8a, except that the rhythm is now abnormal (2 : 1 heart-block).

Heart disease first discovered at age of 18. Fairly well till recent onset of heart failure. Moderate degree of cyanosis but no clubbing of fingers. No history of acute rheumatism. Loud blowing systolic murmur heard along left border of sternum and accompanied by thrill; second sound well heard in pulmonary area. Cardioscopy showed enlargement of heart both to left and right, together with great prominence of pulmonary arc, also considerable congestion of hilar vessels. *Electrocardiogram.*—See Fig. 6.

CASE 6.—Male aged 68. Auricular fibrillation.

Recent onset of breathlessness. Pulse irregular but no evidence of heart failure. Blood pressure 145/90 (approximately). Cardioscopy showed no enlargement of the heart. *Electrocardiogram.*—See Fig. 7.

CASE 7.—Female aged 69. Heart failure; 2 : 1 auriculo-ventricular heart-block; hyperpiesia.

Symptoms of hyperpiesia for many months. Blood pressure 275/95. Pulse normal in rate and rhythm but later infrequent from heart-block. Aortic 2nd sound accentuated. Cardioscopy showed great enlargement of heart, particularly of left ventricle and right auricle. Later developed heart failure and died. *Electrocardiograms.*—See Figs. 8a and 8b.

Necropsy.—See pathological report.

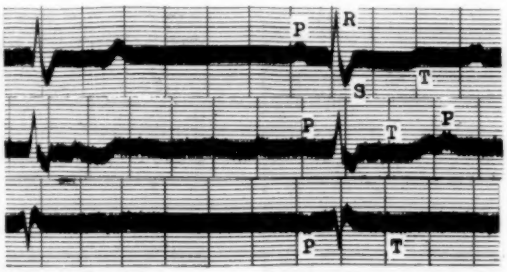

FIG. 9a (Case 8).—The S wave is deep and the Q R S complex wide in leads I and II. The P wave is inverted and the T wave flat in lead III. Complete auriculo-ventricular block is present.

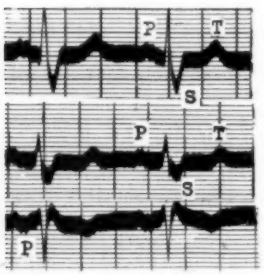

FIG. 9b (Case 8).—The changes are similar, except that the rhythm is now normal. This tracing was taken three weeks after that shown in Fig. 9a.

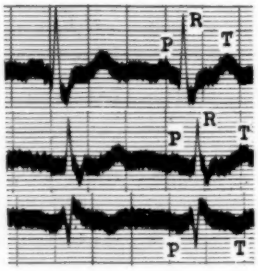

FIG. 10 (Case 9).—The S wave is deep and the Q R S complex wide in leads I and II. The P and T waves are inverted in lead III. There is a tendency to left electrical axis-deviation.

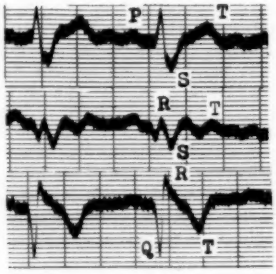

FIG. 11 (Case 10).—The S wave is deep and the Q R S complex wide in leads I and II. The T wave is inverted in lead III and diphasic in lead II.

CASE 8.—Female aged 81. Heart failure; complete auriculo-ventricular block.

Recent onset of heart failure. Complete auriculo-ventricular block present on one occasion, but normal rhythm returned and heart failure disappeared after treatment with digitalis. Blood pressure 150/85. Cardioscopy showed congestion of hilar vessels but without obvious enlargement of heart. *Electrocardiograms.*—See Figs. 9a and 9b.

CASE 9.—Female aged 66. Hyperpiesia.

Giddiness, exhaustion, and palpitation for six months. Pulse irregular from premature systoles. Blood pressure 200/90. No evidence of heart failure. Cardioscopy showed enlargement of left ventricle. *Electrocardiogram.*—See Fig. 10.

CASE 10.—Male aged 54. Angina pectoris; hyperpiesia.

Attacks of angina pectoris (angina of effort) for two years following cardiac infarction. Blood pressure

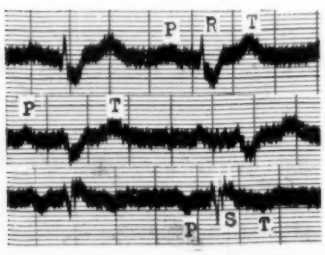

FIG. 12 (Case 11).—The S wave is deep and the Q R S complex is wide in leads I and II. The P and T waves are inverted in lead III and there is a tendency to left electrical axis-deviation.

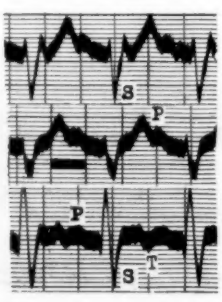

FIG. 13 (Case 12).—The S wave is deep and the Q R S complex wide in all leads. The T wave is inverted in lead III. There is sinus tachycardia and the P–R interval is prolonged.

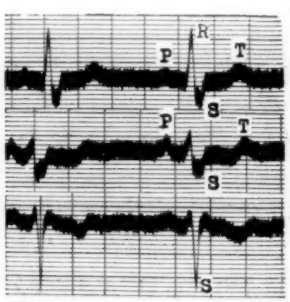

FIG. 14 (Case 13).—The S wave is deep and the Q R S complex wide in leads I and II. The T wave is inverted in lead III. The rhythm is regular and there is left electrical axis-deviation.

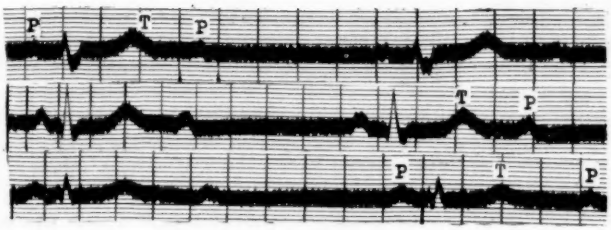

FIG. 15a (Case 14).—The S wave is deep in lead I and the Q R S wide in leads I and II. The rate is slow (31 per minute) and the rhythm abnormal (2 : 1 auriculo-ventricular block).

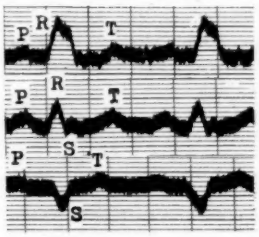

FIG. 15b (Case 14). — Left bundle-branch block. This tracing was taken six months after that shown in Fig. 15a.

175/105. Enlargement of left ventricle. *Electrocardiogram.*—See Fig. 11.

CASE 11.—Male aged 59. Aortic stenosis (atheromatous). Breathlessness for three years. Systolic murmur and thrill in aortic area. Second aortic sound not heard. No evidence of heart failure. Blood pressure not raised. Cardioscopy showed moderate enlargement of left ventricle and prominence of atheromatous ascending aorta. *Electrocardiogram.*—See Fig. 12.

CASE 12.—Female aged 30. Heart failure; mitral stenosis.

Acute rheumatism when 13 years old. Recent onset of heart failure during fourth month of pregnancy. Mitral stenosis present. *Electrocardiogram.*—See Fig. 13.

CASE 13.—Male aged 59. Angina pectoris (angina of effort).

Cardiac infarction three months previously succeeded by attacks of angina of effort. Blood pressure 150/90. *Electrocardiogram.*—See Fig. 14.

CASE 14.—Male aged 54. Adams-Stokes' syndrome; heart failure; 2 : 1 auriculo-ventricular block.

Momentary fainting attacks and breathlessness for eight months. Heart failure present. Blood pressure 160/65. Pulse slow (34 per minute) from heart-block, but subsequently normal. *Electrocardiograms.*—See Fig. 15a and 15b.

SUMMARY AND CONCLUSIONS

The new nomenclature applied to bundle-branch block has established that the curve denoting interruption in the right branch is less common than that indicating a lesion of the left branch of the bundle. Wilson and his co-workers (1934), however, have reminded us that the diagnosis of bundle-branch block depends largely on the criteria set up for the graphic interpretation of curves which may signify the condition so that it is likely that our present conception of the relative incidence of the two varieties of bundle-branch block is an erroneous one.

The distinctive electrocardiogram which I had collected for inquiry during the past five years received an explanation when Wilson and others (1934) published their paper.

The curve is characterised by a deep S wave as component of a wide Q R S complex in lead I and also in lead II as a rule. The T wave is upright in leads I and II and is usually inverted in lead III. The Q R S complex in lead III is also wide and although it may be upright it is more often directed downwards.

It is suggested that this curve, of which I have assembled 12 examples among a series of 3840 routine consecutive electrocardiograms, denotes a lesion of the *right* branch of the bundle; in the same series I found only two examples of the curve which has been hitherto regarded as standard for right bundle-branch block and which is the graphic counterpoise of the curve characteristic of left bundle-branch block, of which there were 17 examples in the same series. Thus the newer curve is much commoner than the one standard for right bundle-branch block. That the newer curve denotes right bundle-branch block is supported by the experimental work of Roberts and his colleagues (1932) who obtained a comparable curve in the cat; by the examination of curves obtained by chest leads (Wilson and others 1934); by a study of the time relation of the dynamic events in the two ventricles by Wolferth and Margolies (1935); by the conclusions of Battro and his co-workers (1936) as a result of a similar study; and by the findings at necropsy in Case 7 reported in this paper.

The reports of further examinations of the bundle and its branches at necropsy in cases showing this characteristic electrocardiogram during life are awaited, and they may establish more certainly the significance which meanwhile it is proposed to allot to this curve.

The second part of the paper, containing Prof. TURNBULL'S *account of the necropsy in Case 7 and the bibliography, will appear next week.*

MESENTERIC OCCLUSION

BY RONALD W. RAVEN, F.R.C.S. Eng.

SURGEON TO OUT-PATIENTS, FRENCH HOSPITAL; ASSISTANT SURGEON, GORDON HOSPITAL FOR RECTAL DISEASES; AND SURGICAL REGISTRAR, ROYAL CANCER HOSPITAL (FREE)

PATHOLOGICAL occlusion of the blood-vessels of the mesentery is an infrequent occurrence, whilst recovery from operation for resection of the segment of bowel involved and re-establishment of the continuity of the bowel as a primary measure is undoubtedly rare. In 1921 Klein stated that 24 successful resections had been reported since Elliot first performed this operation in 1895. It is most probable that there are many cases of this nature which are unrecognised, owing to the difficulties in diagnosis and a belief in the rarity of the condition. Trotter reported in 1914 that only 4 per cent. of 366 cases were diagnosed correctly. The primary object of this paper is to report a case of mesenteric occlusion in which resection of the segment of bowel involved was performed and the continuity of the bowel re-established, with recovery of the patient. The opportunity is also taken of reviewing certain facts in connexion with the disease, and of calling attention to the various clinical syndromes which may be encountered.

CASE REPORT

A single woman, aged 68, was complaining of abdominal pain. She had been awakened 18 hours previously with colicky pain, and had vomited on

several occasions. There had been constipation for fæces and flatus during this time. Micturition was normal. There were no other symptoms.

Examination.—She was recumbent in bed, lying quite still, pale, and slightly cyanosed. Temperature 98·4° F.; pulse-rate 76; respirations 18. No collapse, and she was not distressed. No jaundice. Tongue furred. Chest: heart and lungs normal. Abdomen a little distended in the lower half; no visible peristalsis: movement equal. There was tenderness around the umbilicus, and there was no rigidity. The liver, kidneys, and spleen were not palpable, and no abnormal swelling could be palpated. Per rectum: no abnormality; no blood on examining finger. An enema saponis was ordered, but no result was obtained and no flatus passed.

Operation.—The abdomen was opened through a right paramedian incision 5 in. long. When the peritoneum was incised a quantity of offensive blood-stained fluid was evacuated. On examination of the intestine it was found that there was gangrene of the terminal ileum, extending proximally for about 18 in. and distally to a point 2 in. from the ileocæcal valve. The mesentery of the implicated bowel was very thickened. The gangrenous bowel was withdrawn from the abdomen and resected together with the involved portion of the mesentery. Care was taken to ensure that the bowel above and below the site of the resection was healthy. The lower segment of the ileum was closed and continuity of the bowel was re-established by an end-to-side anastomosis, between the ileum and ascending colon. The abdomen was closed, and the patient's condition was satisfactory on returning to bed. Careful post-operative treatment was carried out on the lines laid down below. The bowels were opened normally on the fourth day after operation and the patient made a good recovery.

ÆTIOLOGY

Occlusion of the superior mesenteric artery is due to either thrombosis or the presence of an embolus. If an embolus is present there is generally an associated endocarditis, a fragment of the diseased cardiac valve becomes detached and occludes the superior mesenteric artery. Gallavardin (1901) states that in these cases the usual cardiac lesion is mitral stenosis. Other emboli arise from atheroma of the aorta. Instances of rarer sites of such emboli are furnished by the cases of Virchow and Klob. In the case of the former author, the embolus originated from a thrombus in the pulmonary vein, and the latter described a case where a thrombus occurred in a patent ductus Botalli and occluded the superior mesenteric artery. If thrombosis of the superior mesenteric artery or its branches occurs, there is usually arterio-sclerosis present, and this may be primary in the superior mesenteric artery. Rare causes for thrombosis of the artery are the extension of thrombosis from an aneurysm of the aorta or pressure from an intra-abdominal tumour on the origin of the vessel.

Occlusion of the superior mesenteric vein is generally due to thrombosis. A large number of conditions are described which may cause thrombosis of the superior mesenteric vein. Cokkinis (1926) and Larson (1931) consider acute appendicitis to be the chief cause. Another important factor is inflammatory disease in the pelvis. Other predisposing conditions are cirrhosis of the liver, pylephlebitis, peritonitis, and general sepsis. There is a group of cases with hæmatogenous causation, comprising certain blood diseases which predispose to thrombosis, such as splenic anæmia and polycythæmia vera. Thrombosis of the superior mesenteric vein or its radicals may follow trauma to the vessels, tearing of the mesentery, and trauma from abdominal operations. Warren and Eberhard (1935) grouped together the cases of four authors and found that in the largest number of cases the causation was unknown.

PATHOLOGY

The superior mesenteric artery arises from the anterior aspect of the aorta beneath the pancreas and the splenic vein.

The artery soon divides into a large number of branches which supply the small intestine and about the proximal half of the large intestine. Connecting arteries between these branches form a series of arcades, one to five in number. The branches from the terminal arcades pass to the wall of the intestine, generally to one or other side, but occasionally a terminal branch divides and passes to both sides. Cokkinis (1930) has shown that the terminal branches from any one terminal arcade do not anastomose with one another, nor with the branches of adjacent terminal arcades.

The superior mesenteric artery has practically no anastomoses with other vessels, and thus behaves as an end-artery. Another important fact is that the blood pressure in the terminal arcades of the mesenteric circulation is low, and the circulation in the terminal branches is largely dependent upon peristalsis movements. If the oxygen supply of the intestine is interfered with, tonic contraction of its wall occurs, and this predisposes to ischæmia, extension of thrombosis, œdema, and extravasation of blood.

If sudden occlusion of the main stem of the superior mesenteric artery occurs above the point at which the branches arise there results, in all probability, an anæmic infarct of the small intestine and the proximal half of the large intestine. If the superior mesenteric vein is occluded at the same point, a hæmorrhagic infarct of the same portion of the bowel occurs. If the occlusion occurs slowly, infarction may result, or, on the other hand, there may be no ill effects, providing there is time for the collateral circulation to become established.

If occlusion occurs below the point where the superior mesenteric artery divides, and above the last arcade, several results may be seen. No symptoms, or at most only transitory ones, may be produced. Again, there may be tonic spasm of the wall of the bowel with stagnation, causing secondary thrombosis in the mesenteric vessels distal to the initial point of occlusion.

If occlusion occurs in the vasa recta there is interference with the blood-supply to the part, but vessels supplying about 3 cm. of bowel must be affected for infarction to occur.

In the main the same conditions and processes apply to both arteries and veins, except that arterial occlusion is generally sudden and embolic, whereas venous occlusion is slower and thrombotic. Changes in the bowel wall result from interference with the blood-supply. The earliest changes are œdema and congestion of the small vessels in the submucous tissues. The œdema and congestion increase, and later there are petechial hæmorrhages and focal gangrene of the mucous membrane. The bowel is dark red, dilated, and heavy. Its content is thin fæcal material mixed with blood. Gangrene spreads outwards from the mucous membrane until all the layers of the bowel are involved. Peritonitis supervenes later, and there is a transudate of foul blood-stained fluid into the peritoneal cavity.

SYMPTOMS

The patient may be of any age between 20 and 60 years, and men are more commonly affected than women. There may be symptoms of some predisposing lesion, such as endocarditis or arterio-sclerosis. A recent operation may have been performed, such as appendicectomy, gastrojejunostomy, or hernio-

tomy. The commonest symptom is abdominal pain, which is severe and colicky in nature. It may be experienced all over the abdomen, or it may be localised to a particular segment. The pain usually occurs in attacks.

Constipation is usually present during the course of the disease. The patient is unable to pass flatus or fæces, and this may be one of the first symptoms. Blood in the stools is an important symptom, but is seen in less than half of the cases. Diarrhœa is not uncommon.

On examination the patient looks ill. The tongue is furred. The temperature is either normal or subnormal at the commencement, and the pulse-rate is somewhat raised. There may be signs of endocarditis or arterio-sclerosis. The abdomen is generally a little distended, limited to certain sectors at first, but later becoming generalised. There is tenderness which is often generalised, but more severe in one or other quadrant. There may be signs of free fluid in the peritoneal cavity. In a minority of cases it is possible to palpate the thickened coil of affected intestine. Reich (1913) has suggested the following clinical grouping of cases with this disease, according to the predominating symptoms:—

Diarrhœa.—The patient suffers from intractable diarrhœa, which occurs at the onset of the disease. The stools may contain blood. Of all cases 15 per cent. form this clinical group.

Constipation.—Obstinate constipation for fæces and flatus occurs with the onset of abdominal pain. Vomiting occurs and the vomitus may contain blood. About 35 per cent. of cases comprise this clinical group.

Diarrhœa and constipation.—In this group diarrhœa usually occurs early during the course of the disease, and this is followed by constipation. Again there may be alternating diarrhœa and constipation. This group includes 34 per cent. of all cases.

Indefinite symptoms.—Patients in this group experience indefinite abdominal pain, with distension and rapid collapse. Associated with this there may be uræmia, apoplexy, or coma.

TREATMENT

A great deal of controversy has occurred regarding the precise operation to be undertaken in these cases. The principle has now been established that the infarcted bowel and its occluded blood-supply should be excised, and if possible the continuity of the bowel restored. Meyer (1931) states that in these cases enterostomy is useless since the bowel is paralysed, and the establishment of an enterostomy does not prevent autolysis or the absorption of autolytic products from the diseased area. If the symptoms of infarction are severe, early exploratory laparotomy should be performed while the patient's general condition is satisfactory. There are certain cases in which a mesenteric embolus is suspected, but the symptoms are not severe and rapidly subside. In these cases it may be wise to defer operation and a favourable issue results.

Careful post-operative treatment is essential. The patient should be given normal saline, either per rectum, subcutaneously, or intravenously. If given per rectum or intravenously, 5 per cent. glucose should be added. Vomiting is overcome by means of gastric lavage through a Ryle's stomach-tube, which may remain in the stomach for some time, and any regurgitant fluid is periodically withdrawn. Abdominal distension is treated by means of subcutaneous injections of eserine or pitressin. Glycerin enemata given daily are of value. After several days the bowels will open normally, and thereafter a mild aperient should be given as indicated. If success in these difficult cases is to be achieved, the greatest attention must be devoted to every detail.

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LYMPHOGRANULOMA INGUINALE IN THE FEMALE

By Norman Whittaker, M.B. Camb., M.R.C.P. Lond.
HOUSE SURGEON AT UNIVERSITY COLLEGE HOSPITAL

The two cases described below were admitted to University College Hospital with a history of long-standing diarrhœa and with blood in the stools.

Case 1.—A single woman aged 24, a milliner, had lived in an industrial town in Bedfordshire all her life save for two years in Scotland (in an inland town in the Lowlands). Previously she had had pneumonia, measles, and mumps. She attended University College Hospital in 1930, when she gave a history of persistent diarrhœa with the passage of blood and slime in the motions for two years. This started after an attack of influenza. There was some pain in the front of the abdomen and in the back.

On examination as an in-patient, she was emaciated and under-weight. The stools contained blood and pus; on culture they grew *Bacterium coli* and diphtheroids. On rectal examination there were external piles and a fissure; the rectal wall was felt to be granular. On sigmoidoscopy the mucous membrane was ulcerated and discharging pus copiously. No stricture was felt or seen.

Treatment and progress.—The case was diagnosed as ulcerative colitis and treated with rectal lavage and non-residue diet. Astringents and opium were given without any permanent improvement. She was transferred to the surgical side and appendicostomy was performed (April 25th, 1931). At the operation the colon appeared and felt normal. After lavage with potassium permanganate through the appendicostomy there was considerable temporary improvement.

From her discharge in 1931 she was fairly well save for periodic attacks of severe diarrhœa with the passage of pus and blood.

In January, 1934, she presented herself with two abscesses ¾ in. in diameter at the margin of the anus and at the posterior end of the vulva. These were opened and she was left with a persistent sinus on the left side of the perineum. In October, 1935, the appendicostomy was reopened and she made some improvement with further colonic lavage. In June, 1936, the rectal bleeding was much worse and she was found to have an annular stricture of the rectum about 2 in. above the anal canal. The stricture was dilated instrumentally after which it admitted the tip of the index-finger. The symptoms persisted and she was readmitted.

Frei's test.—At this stage Frei's test was performed. It was weakly positive. A month later the test was repeated with a different supply of antigen. After 48 hours there was a dome-shaped papule surrounded by an area of erythema 1 in. across. The papule persisted for six days. There are no inguinal buboes and the labia majora are normal. The Wassermann reaction is negative.

Case 2.—A married woman aged 36. She has been married for fifteen years and has lived all her life in England save for two short holidays in France (six weeks)

and in Ireland (fourteen days). She was admitted on Feb. 28th, 1935, with a history of persistent bloody diarrhœa which she had had for seven months.

On examination she was febrile, slightly wasted, with no physical signs in the abdomen and no abnormality of the rectum on digital examination. The stools contained much blood, pus, and mucus. On culture the stools grew *Bacterium coli* and *Bacterium morgani*. The Widal reaction was negative; her serum agglutinated *Bacterium dysenteriæ* Flexner to a titre of 1 in 50; a barium enema revealed no abnormality of the colon.

Treatment and progress.—She was diagnosed as ulcerative colitis and treated with Yatren, kaolin, and a chalk and opium mixture without improvement. Later, on a full diet, colonic lavage, and fresh air treatment, she improved steadily and put on weight. Six months later this therapy was repeated without success. Appendicostomy was performed and the lavage done through this but without improvement.

A year later she was readmitted with a rectovaginal fistula. Under anæsthesia she was found to have one fistula opening to the left of the urethral orifice and another at the posterior margin of the vulva with a track leading towards the rectum. The rectal wall was indurated and nodular and it narrowed about 1 in. from the anus. On sigmoidoscopy the mucous membrane appeared nodular, very red, and bleeding easily like granulation tissue. Colostomy was performed in the transverse colon. A piece of the colon wall was removed and was microscopically normal.

Frei's test was performed but she did not react to the first specimen of antigen. The test was repeated with another antigen a fortnight later. After 24 hours the whole of the anterior surface of the forearm was red and slightly œdematous. After 48 hours there was a typical papule with a red areola ¾ in. across. She was much upset by the injection with abdominal pain, vomiting, and recurrence of the diarrhœa. She has no inguinal buboes and the labia are normal. She states that her husband has had no lumps or discharging places in the groin. Her Wassermann reaction is negative.

TECHNIQUE OF FREI'S TEST

The test was described by Frei in 1925, and his technique has been followed exactly.

Pus is withdrawn from an inguinal bubo of a proved case of lymphogranuloma inguinale with strictly aseptic precautions. It is essential that the gland used has not been incised and that there have been no sinuses. The pus is diluted 1 in 10 with physiological saline; it is then heated on a water-bath at 60° C. for two hours in the first twenty-four after it has been withdrawn and for one hour in the next twenty-four. It is preserved in sealed ampoules. The antigen can also be prepared from a gland excised with surgical precautions. The active antigen used in these cases was prepared by the second method.

To perform the test 0·1 c.cm. of the antigen is injected intracutaneously into the volar surface of the forearm. The result is read after 48 hours. A positive reaction consists of a dome-shaped papule at the site of injection surrounded by an area of erythema 2 cm. across.

Pseudo-positive reactions may occur in the few days before the menstrual period, in cases of prolonged illness with pyrexia, and in the early stages of syphilis. The specificity of the test has been amply confirmed. It is said to give positive results in 97 per cent. of cases. In view of the occurrence of pseudo-positive reactions it is desirable to test all antigens used on definite negative cases. Negative results were obtained in the following cases with the second antigen.

CASE A.—Woman, aged 18, with gonococcal arthritis of the right wrist. Gonococcal complement-fixation test positive. Wassermann reaction positive, Frei test negative.

CASE B.—Woman, aged 59, admitted for the repair of a scar hernia. Frei test negative.

CASE C.—Woman, aged 57, with proctitis and sinuses. Frei test negative.

RELATION OF RECTAL STRICTURE TO LYMPHOGRANULOMA INGUINALE

The clinical condition found in these two patients—rectal infiltration and stricture with multiple fistulæ—was first described by Fournier in 1875 under the term "anorectal syphiloma." There was no satisfactory evidence for this ætiology.

Although previously recognised as a tropical disease called "strumous buboes" or "climatic buboes," the classical description of lymphogranuloma inguinale is that of Durand, Nicholas, and Favre (1913), who described the condition in the male in France. The introduction of the Frei test enabled this and another condition in the female, elephantiasis of the vulva or esthiomène, to be recognised as syndromes of lymphogranuloma inguinale. In 1928 Frei and Köppel published 5 cases of benign stricture of the rectum, all with positive Frei reactions. Köppel published 2 more cases in 1929. Since then longer series of cases have been published, including the following.

Pennoyer (1936) ..	18	Frei-positive out of	22 cases
Lichtenstein (1936) ..	55		58 ,,
Vander Veer, Cornia, and Ullery (1935) ..	15		21 ,,
Lee and Stacey (1934)	14		16 ,,
Rainey and Cole (1935)	14	all positive.	

These series have been collected in America and contain a large proportion of negro women. Opinion now tends towards considering all benign strictures of the rectum to be cases of lymphogranuloma inguinale (Stannus 1934).

An explanation is found in the lymph drainage of the female genitalia. That of the uterus is to the pre-aortic, superior hæmorrhoidal and sacral glands, and to the anorectal glands of Gerota. Consequently there is no involvement of the inguinal glands and no buboes unless the primary lesion is on the outside of the vulva or about the clitoris. Either esthiomene or infiltration and stricture of the rectum are the commonly resulting syndromes, according to whether the main infection is in the iliac glands or in the anorectal glands (Barthels and Biberstein 1931).

DISCUSSION

Both cases have a negative Wassermann reaction and no suggestion of a syphilitic ætiology. Cases of lymphogranuloma inguinale proved to have been acquired in England have been published by Stannus and Findlay (1933) and by Earle (1936). Both were climatic buboes. The cases described above have never left the United Kingdom save in the second case for eight weeks. Neither gives any history that suggests where they acquired the disease. We have been unable to find other cases of the anorectal syndrome published in England.

The cases illustrate how unsatisfactory is a diagnosis of ulcerative colitis, because this is not a specific malady but a name for a group of symptoms common to a number of diseases. The first case carried this label for eight years, and the second for two years before the true nature of the condition was discovered.

My thanks are due to Mr. Gwynne Williams for permission to publish these cases and for help and encouragement, and to the Royal Albert Dock Hospital and to the Hospital for Tropical Diseases for supplies of the antigen.

(*References at foot of opposite page*)

CLINICAL AND LABORATORY NOTES

INSULIN SENSITIVITY AND OPIUM CURE

DEEP COMA WITH 7·2 UNITS OF INSULIN

By GABRIEL LANGFELDT, M.D.

ASSISTANT MEDICAL OFFICER AT THE UNIVERSITY PSYCHIATRIC CLINIC, VINDEREN, NEAR OSLO, NORWAY

IN THE LANCET of Sept. 25th Gillman and Parfitt record a case in which coma was produced with 18 units of insulin. The following case is I think of theoretical as well as clinical interest, for it will be seen that very deep coma suddenly set in after the intravenous administration of only 7·2 units of insulin.

The patient was a man of 50, of pyknic build, and was admitted to hospital in February last with a diagnosis of chronic melancholia. He remained in the hospital till August 10th when he was discharged as improved. During his stay his sensitivity to insulin was investigated by several methods. On March 4th the blood-sugar curve, estimated after administration of 50 grammes glucose by mouth with 20 units of insulin intravenously, was as follows :—

A.M.	Mg. per 100 c.cm.	A.M.	Mg. per 100 c.cm.	A.M.	Mg. per 100 c.cm.
*9.00	99	9.47	146	10.54	102
9.10	134	10.01	137	10.56	101
9.13	148	10.15	129	11.10	97
9.27	159	10.17	129	11.11	95
9.29	161	10.30	116		
9.45	148	10.38	115		

* Fasting.

Before this test he had had no treatment with opium or any other narcotic. On July 17th he was put on an opium cure, receiving every day increasing doses until July 25th. On the 27th the same test was repeated with the following result :—

A.M.	Mg. per 100 c.cm.	A.M.	Mg. per 100 c.cm.	A.M.	Mg. per 100 c.cm.
*9.00	101	9.40	97	10.31	62
9.10	133	9.42	97	10.45	84
9.11	126	10.01	70	10.47	88
9.25	112	10.16	70	11.03	77
9.26	110	10.18	68	11.05	79

During the two hours no symptoms of shock occurred, only hunger; but the increased sensitivity to insulin, as measured by the decreased blood-sugar, is strikingly shown.

Next day I intended to study the patient's sensitivity to insulin administered *fasting* in doses of 0·10 unit per kg. body-weight without any glucose. I have performed about 100 such investigations without encountering symptoms of shock. In this case however the course of affairs was very dramatic. About 40 minutes after the administration of 7·2 units insulin (intravenously) the patient suddenly lost consciousness and fell in convulsions, first of a clonic, but very soon of a general nature. At the same time he became cyanotic and pulseless. After the administration of 1 c.cm. of adrenaline solution (1 in 1000) and 25 c.cm. of glucose solution (33 per cent.) he by and by regained consciousness, showing the symptoms usual after an insulin shock. The blood-sugar curve which could only be followed for half an hour was as follows :—

A.M.	Mg. per 100 c.cm.	A.M.	Mg. per 100 c.cm.
*9.10	104	9.35	63
9.20	96	9.47	58
9.23	92		

As this patient had shown a moderate insulin sensitivity four months previously and no change that can be thought to have influenced it seems to have occurred (the mental state was the same) the question arises whether the opium administration made him more sensitive—e.g., by depressing the production of adrenaline. The case at any rate calls attention to a possible risk in the use of insulin after opium cure.

(*Continued from previous page*)

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ACUTE HÆMORRHAGIC CYSTITIS TREATED WITH PROSEPTASINE

By G. D. WIGHT, M.B. Edin., D.P.H.

ALTHOUGH there have been favourable reports [1] of the use of sulphanilamide in *Bacillus coli* infections of the urinary tract, I know of no record of the efficacy in such infections of the more complex and reputedly less toxic compound, *p*-benzylaminobenzenesulphonamide. The following case may therefore be of interest.

CASE-HISTORY

A youth of 22, sent to me as a possible case of gonorrhœa, complained of frequency and dysuria of a week's duration. He had a slight mucoid urethral discharge but no ectropion or redness of the urethral meatus. The urine was acid and contained obvious pus and blood, confirmed microscopically. Films from the centrifuged deposit showed numerous Gram-negative bacilli which proved to be *B. coli*. No casts were seen. There was no detectable abnormality of the prostate or seminal vesicles, no gonococci were seen, and the complement-fixation test for gonorrhœa was negative.

He was treated at first by rest, free fluids, and alkalis for three days. No improvement resulted, and he was then given two half-gramme tablets of Proseptasine (*p*-benzylaminobenzenesulphonamide) three times a day. In three days he was completely free from symptoms and the urine was free from blood, showing only a few pus cells and organisms. In seven days the urine was crystal clear and contained no pus or organisms, and the patient felt perfectly well. One half-gramme tablet was given three times a day for the next five days as a precaution against recurrence, and the treatment was then stopped.

When the patient was seen some three weeks later the urine showed no abnormality and he was in normal health and free from any symptom. No toxic effects were noted during the exhibition of the drug.

[1] Kenny, M., Johnston, F. D., and von Haebler, T. (1937) *Lancet*, **2**, 119; Cook, E. N., and Buchtel, H. A. (1937) *Proc. Mayo Clin.* **12**, 24; Türk (1937) *Münch. med. Wschr.* August 6th, p. 1259.

RETROGRADE INTUSSUSCEPTION

BY CECIL FLEMMING, M.Ch. Oxon, F.R.C.S. Eng.
ASSISTANT SURGEON TO UNIVERSITY COLLEGE HOSPITAL, LONDON

RETROGRADE intussusception has been rarely described. In the text-books it is said to occur just before death, and exceptionally as a clinical condition requiring operation. A case was reported in 1936 which was operated on but the patient died.[1]

In arguments about the ætiology of intussusception one thing at least is agreed—that there is no difficulty in understanding those cases in which there is a tumour situated at the apex of the intussusception. A case in which there was a tumour at the apex of a retrograde intussusception is of interest in itself and also because of the light it sheds on the physiology of the colon.

A woman aged 30 was admitted to University College Hospital on June 4th, 1937. Until the previous day she had been in perfect health. When admitted to hospital she presented the picture of acute intestinal obstruction. There was a palpable tumour in the left iliac fossa, and a diagnosis of acute intussusception was made. At operation an intussusception was found of the descending colon. The apex of the intussusception was in the middle of the transverse colon. The neck of the intussusception was in the region of the sigmoid colon, and it was apparent that there was a retrograde intussusception of the descending colon. The intussusception was reduced and it was then found on palpation that there was a tumour at the situation of the apex. The sigmoid colon was brought out on to the surface of the abdomen and left unopened. An enema was given on the fourth day and on the eighth day. On the twelfth day the loop was excised and when opened was found to contain a single polypus. Histologically this was a benign tumour. No other tumours could be felt in the descending colon at the time of operation, but the wall was considerably thickened and it was not easy to feel whether or not there were polypi present.

The patient made a smooth recovery, and the colostomy was closed on August 16th.

[1] Lewis, E. E. (1936) *Brit. J. Surg.* **23**, 683.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF SURGERY

AT a meeting of this section on Nov. 3rd, with Prof. G. GREY TURNER, the president, in the chair, a discussion on the management of

Tuberculous Glands in the Neck

was opened by Mr. CLAUDE FRANKAU. The last fifty years, he said, had seen a remarkable change in the treatment of the condition. Before 1885 the practice was to allow caseating glands to burst and discharge, with resulting sinuses, followed by depressed and deforming scars. Sinuses were curetted, and superficial glands were scooped out. Then Clifford Allbutt at Cambridge, and Pridgen Teale, Jr., at Leeds, advocated early removal of the glands, and excellent results were achieved. But even early operation did not prove uniformly satisfactory, chiefly because the pathology was ill understood, and prophylaxis and after-care were largely neglected. Thirty years ago the pendulum swung back to conservative measures and there was a tendency to regard operation as unnecessary, except for relief of abscesses. The effect of this was to prolong the period of treatment, and the last fifteen years had seen a combination of surgery with the hygienic method, the paths of infection being especially stressed, as well as after-care.

In 90 per cent. of tuberculous glands the strain of tubercle bacillus was bovine, and nearly always milk was the infecting agent. The main paths of infection were three: (1) the nasopharynx, especially the tonsils; the glands infected by this route were first those behind the angle of the jaw; then the superficial set down the anterior part of the sterno-mastoid and the deep set surrounding the carotid sheath; (2) the intestinal tract, involving first the mesenteric glands, then the glands of the posterior triangles, and finally the deep set round the carotid sheath; and (3) the mediastinal, the rarest of the three. The first two types were seen mainly in young persons, while the mediastinal—the only type associated with pulmonary tuberculosis—was commoner in the middle-aged and old. All the types might occur spontaneously in apparently healthy persons, but sometimes the initial invasion followed a flare-up of infected glands or a febrile attack, or a tonsillar infection. Usually, after careful observation, the differential diagnosis was easy, but a branchial cyst had often been mistaken for a breaking-down gland, and lymphadenoma might be diagnosed until a gland had been removed.

From the standpoint of treatment, cases could be conveniently classified into five groups:

(1) Single glands involved, or small groups. No caseation, but sometimes peri-adenitis.
(2) Definite caseation.
(3) Subcutaneous abscesses—the so-called collar-stud variety. Caseating material has broken through the capsule and deep fascia is involved.
(4) Diffuse bilateral minor enlargements without much peri-adenitis. Often seen in slum children. May be hard to distinguish from simple septic glands.
(5) Massive diffuse enlargements, extending deeply. Sometimes bilateral. Nowadays uncommon.

The treatment of the first group was non-operative, the aim being to eliminate infection in the mouth and nasopharynx. Tonsillectomy was liable to be followed by a flare-up of infected glands. The patient should be put in the most hygienic surroundings, with fresh air and plenty of sun, and generous rest. The diet must be liberal, with plenty of fatty food, cod-liver oil and malt, and syrup of iodide of iron in moderate doses. This palliative treatment should be continued only if the glands showed a steady diminution, and the glands should be excised if there was no improvement in six weeks—or earlier if there was undoubted increase in size. In Group 2 operation was essential before complete breakdown of the gland; then allowed removal of the glands without rupture, and the scar was insignificant. In Group 3 the cold abscesses were a manifestation of deeper disease. Aspiration was merely palliative, though useful where the skin was red, since it allowed of an easier operation later. Mr. Frankau advised incision (as near the abscess as possible) through fairly healthy skin, evacuation of the caseous material, cleansing of the cavity, and a search for perforation in the deep fascia; this was then enlarged, and usually an infected gland could be seen and dissected out. Careful after-treatment was called for, and patients must not be hurried out of hospital after any of these operations; solid healing before discharge should be the rule, and six weeks in the country afterwards was wise.

In Group 4 operation was not called for unless an individual gland caseated; then that gland alone should be dealt with. In this type he had seen good results from X ray therapy. In Group 5 operation—apart from the evacuation of caseous material from time to time—would involve such heroic measures that it should be avoided. After prolonged general treatment, including rest in bed in the open air, the condition often subsided sufficiently to permit of easy removal; indeed some glands shrank so much that no operation was called for.

Mr. Frankau had no good word to say for tuberculin in these cases; its main effect seemed to be to promote a rapid breakdown of the infected glands. Though irradiation had its place, little could be expected of it when glands were full of caseous deposits.

Mr. W. T. GORDON PUGH submitted impressions from his 27 years as medical superintendent of Queen Mary's Hospital, Carshalton. Any tuberculous lesion, he said, showed lack of resistance and called for open-air life and other hygienic measures. Moreover improvement in the local condition did not necessarily mean cure, and a long stay in country surroundings was very important. At Queen Mary's Hospital there were now 1330 beds, 400 of them in the open air. Of the glandular cases admitted, most had had treatment elsewhere; the majority had already had their teeth and tonsils attended to, some had had light treatment, but none had had radium and only few tuberculin. The skin was seldom undamaged by scar or sinus. Before the late war recurrence followed excision more often than it followed conservative treatment with opening of abscesses as they formed; but after the war the position was reversed. Up till 1920 local treatment was carried out at Carshalton, with aspiration and opening of abscesses, and curetting of sinuses that did not heal rapidly; in 20 per cent. of cases this did not suffice and glands were removed. Neither tuberculin nor X rays were used. In 1920, however, a half-strength radium applicator was procured, with an area of 4 square cm., the smallest suitable for treating glands. Since then three had been a reduction in the proportion of cases needing excision. The benefit in the 300 cases in which the applicator was used appeared to be lasting. Shrinkage took place after about the third application of the rays, and some of the glands disappeared after the applications.

In London, of late years, there had been a remarkable reduction in the incidence of tuberculous adenitis and in its severity. This reduction Mr. Pugh attributed largely to the general practice of milk pasteurisation, and to increased attention to teeth and tonsils. The greatest improvement in the future would he thought come from the more general use of radium in the early stages; this was made easier by the recent great reduction in the price of radium, and every sanatorium and tuberculosis dispensary should possess at least one applicator of the kind he had described, of which the cost was now under £50.

Mr. B. W. WINDEYER had analysed 203 cases of tuberculous glands in the neck treated by radiotherapy at the Middlesex Hospital since 1931. Of these, 28 were treated by surgery and radium, 26 with X rays, and 149 with radium. Results were considered "good" when glands totally disappeared or became small and fibrotic or calcareous; the cases were termed "improved" when the mass had decreased but small glands were still palpable, or induration was felt beneath the skin or healed sinus; they were called "unimproved" if there was little decrease in size, if they had not become quiescent, or if sinuses persisted. With surgery and radium, a good result was obtained in 15 of the 28, 4 were improved, 7 unimproved, and 2 were lost sight of. In the second group (X rays) and the third (radium) the results were also mostly good; with radium 90 were good and 36 improved, out of 149. Radium therapy must however be regarded as an adjunct to constitutional treatment, which remained the most important factor. No attempt was made to directly destroy the tuberculous process by the irradiation; the object was to cause a slight local aseptic inflammatory reaction which would aid the body defences and promote repair. Most of the patients he dealt with could not have sanatorium treatment; almost all had been treated as out-patients, and many were carrying on their normal work. All possible fresh air, suitable food, and rest were procured, and septic foci, such as teeth and tonsils, were removed. It was necessary to aspirate and remove all breaking-down products in the glands. Small discrete glands did not seem to respond as well as large fluctuant ones. Collar-stud abscesses needed repeated applications; sometimes they healed leaving a small calcareous nodule deep in the tissues, and, after years, they might again light up. Fluctuation and abscess-formation had not been regarded as a contra-indication for the treatment. With care, X rays probably gave as good results as radium, and their use was preferable because of the risk to health associated with the application of radium by large numbers of administrators. Before radium was applied the patients should be thoroughly examined. Radiotherapy gave much better cosmetic results than surgery.

Prof. J. PATERSON ROSS said that if surgery was decided upon it must be realised that the operation required was a big one; the days when the scraping of a tuberculous abscess was held to suffice had vanished. When glands in the upper part of the neck were involved the infection came from the tonsil, which could be removed; but the source of infection of enlarged glands lower in the neck was probably thoracic, and operation on them would mean no more than lopping off branches of a diseased tree.

Mr. PHILIP TURNER thought the long period required for radium treatment a disadvantage; by surgery a gland in the neck could be removed altogether. If suppuration followed he had sometimes injected a preparation of iodine into the tonsil, with satisfactory results. He agreed that in early cases radium treatment, combined with constitutional measures, seemed to be the ideal.

Mr. M. F. NICHOLLS thought that tuberculous glands in the neck must now be much less common and much less severe than 25 years ago. Any careful and well-directed treatment would give better results to-day than surgery yielded 20 years ago.

Mr. A. SIMPSON-SMITH said that in cases with supraclavicular glands or small shotty glands in the neck radium treatment took a long time. His plan was to send the patients to convalesce for three months, and if the glands had not disappeared then he excised them, and later the tonsil. The results had been uniformly good, except in cases having enormous peri-adenitis.

Mr. CHARLES DONALD said that if glands were still coming up it was wrong to excise them; when they had been stationary for a considerable time, or were slowly softening, he operated. There was no occasion for an ugly scar.

The PRESIDENT gave a general review of the history of the subject, and related instructive cases.

ROYAL ACADEMY OF MEDICINE IN IRELAND

AT a meeting of the section of obstetrics on Oct. 15th, with Dr. BETHEL SOLOMONS in the chair, a presidential address on

Backward Displacements of the Uterus

was read by Dr. J. S. QUIN. The supracervical portion of the uterus was, he said, the only fixed portion, being firmly held by the parametrial and paravaginal tissues. Round this pivot the uterus could rotate in the vertical plane, and it must be regarded as a mobile organ with a normal range of movement of almost 120°. The normal position of the uterus in anteversion and anteflexion was due to the forward tilt of the pelvis in the erect posture. In the unmarried deviations from the normal rarely caused symptoms and still more rarely called for treatment. On marriage a congenital displacement might make itself apparent in several ways (e.g., dyspareunia) but usually the patient sought advice for sterility or an early abortion. In cases of early abortion Dr. Quin recommended replacement of the uterus and insertion of a pessary for three months. If it then fell back the patient should be warned to report at once should she become pregnant so that the pessary could be reinserted. Incarceration of the congenitally retroverted gravid uterus was rare. When congenital retroversion was associated with sterility the uterus should—after a reasonable lapse of time—be fixed by operation. The modified Gilliam suspension operation was the most satisfactory. Retroversion was found in about 20 per cent. of women in the puerperium, and all women should be examined 4–6 weeks after delivery so that a pessary could be inserted if retroversion was found. Even if the pessary did not cure the condition it would help in the involution of the uterus. Symptoms would arise only if there was subinvolution of the uterus or some descent of the uterus and vaginal vault.

Dr. T. M. HEALY was doubtful whether the cure of a backward displacement in a nullipara would alone suffice to relieve backache. Where there were symptoms in the puerperium on the other hand the retroversion was almost always the cause. He had often put in a Smith-Hodge's pessary about six weeks after the birth of the baby but had been extremely disappointed with the results; and where puerperal retroversion persisted, symptoms always developed. He had found that in cases of sterility with retroversion the use of a pessary had not led to conception, whereas an operation had almost always done so. The use of pessaries should always be avoided in women who could have an operation. He could not remember having seen a patient after operation who was dissatisfied with the result. He did not think it mattered very much which operation was done, provided the uterus was stitched so as to keep it forwards on the broad ligament.

Dr. J. F. CUNNINGHAM thought that retroversion was rare in nulliparous unmarried women, but retroflexion was common. In these cases he thought a pessary should be used. If symptoms were sufficient to justify a suspension operation, it was always wise to dilate the cervix first. Of women sterile after three years or more of marriage a large proportion suffered from retroversion, and here he thought operation justified, for pregnancy often followed. As a rule retroversion was pathological, and the woman with a retroverted uterus was more likely to develop cystocele and to have hæmorrhages and other troubles at the menopause. He personally had not found the Alexander-Adams operation very satisfactory. Formerly he had always used silk as a suture material, but now he used chromic catgut.

Dr. D. J. CANNON had come to the conclusion that symptoms were not due to displacement per se, but to displacement in combination with other factors. Often the cause of bleeding was subinvolution of the uterus, and if such bleeding was the result of backward displacement, it was because the uterus was bigger than normal. Dyspareunia seldom had anything to do with backward displacement; there was always a cervicitis, and the pain was due to inflammatory bands in the parametrium. Women who suffered from congenital displacement frequently suffered from pyloric spasm, and with fixation of the uterus the gastric symptoms disappeared. He always used catgut as a suture material. The operation should be done neatly and quietly, for if there was any hæmorrhage there was a good deal of pain.

Dr. A. H. DAVIDSON said that after insertion of a pessary about 50–60 per cent. of cases of puerperal retroversion would recover without operation. In those that did not, operation should be done to obviate the risk of abortion later. The Alexander-Adams operation was very satisfactory. Backache was often due to posterior lymphangitis, and not to backward displacement. In cases of prolapse associated with backward displacement, Gilliam's operation was very seldom done now, Fothergill's operation being preferred.

Dr. R. M. CORBET said that in a parous patient, with a mobile retroversion, he always tried pessary treatment for three months, and he found that a considerable proportion of these patients became pregnant while wearing the pessary. In nulliparous women, with dysmenorrhœa, he thought that, besides dilating the cervix, one should correct the backward displacement by suspension. As a rule he did the Gilliam suspension and the Alexander-Adams operation; he recommended the latter for parous women with mobile retroversion whose symptoms were relieved when the retroversion was corrected but recurred when the pessary was removed. It had the great advantage of leaving the abdominal wall intact and the peritoneal cavity unopened. Fixed retroversion must of course be treated by intra-abdominal operation. If retroversion was found in early pregnancy, he thought the uterus should always be replaced and held in position with a pessary. At the menopause a retroverted uterus was liable to cause symptoms, and he thought the treatment should then be total hysterectomy rather than suspension.

Dr. O'DONEL BROWNE agreed with the President that all puerperal retroversions that could not be cured after adequate Smith-Hodge pessary treatment should be cured at a later date by operation if there were symptoms directly referable to the retroversion. He also agreed that pessary treatment for retroversion or other abnormalities in the nullipara was useless. Generally speaking, retroversions and retroflexions should be treated by operation if they were causing any backache, menstrual disorders, or other disturbances, for patients who knew themselves to have an abnormality usually had some psychological disturbance. It was a fallacy, however, to suppose that the Gilliam, or modified Gilliam, suspension technique can cure ovarian congestion and varicocele. The engorged vessels would be noted at the moment of closing the abdomen if the suspension allowed the heavy ovary to prolapse into the pelvis

and kink them at the brim of the pelvis. In all such cases, besides performing some variety of Gilliam suspension, he suspended the ovary itself, by means of its mesovarium, to the peritoneum to above the brim of the pelvis, thus allowing free venous return with relief of the dragging ovarian pain. In the course of operation the Fallopian tube on one or both sides could easily be drawn outwards together with the round ligament, thus being kinked so that sterility followed. In such cases of under-development of the round ligaments with close approximation of the ligament and tube, he preferred a Baldy-Webster or Kelly's suspension to any modification of the Gilliam technique. The various round-ligament operations for cure of misplacement, although possibly quite satisfactory in practice, were not anatomically correct, for the position of the uterus primarily depended upon the state of the uterosacral and transverse cervical ligaments.

Dr. BETHEL SOLOMONS said that the question whether backward displacement of the uterus was pathological was not settled and the pendulum of opinion swung to and fro. In this country perhaps too much was made of its guilt. He had shown that a perfectly performed operation for displacement cured many cases of dysmenorrhœa. Sterility, too, was often cured and this was natural, for in retroflexion the os uteri was so far from the receptaculum seminalis. Abortion was often caused by retroversion. But when a woman complained of backache there must be a thorough clinical investigation, with radiographic examination of the spine and other tests, before backward displacement was blamed; and emolument for the gynæcologist must not be considered an indication for operation. He believed that the subperitoneal Gilliam operation was the best, but there were some indications for the Alexander-Adams and the Baldy-Webster; the latter was useful when there was any raw surface at the back of the uterus. The Alexander-Adams operation brought about a perfect anatomical pull on the ligaments. Fine silk should be used, for the displacement might recur after using catgut. Dr. Solomons's summing-up was that when symptoms were present retroversion should be corrected by operation and not by pessary; if there were no symptoms the woman should be left alone.

Dr. A. W. SPAIN referred to cases in which retroversion did not produce symptoms until some time after the birth of the baby—perhaps a year later. Here a pessary would sometimes remove the symptoms. He thought it was wise to be slow about operation in such cases, especially if the woman was still of child-bearing age. He had seen many women become pregnant soon after insertion of a pessary, and he did not think pessaries so evil as some teachers suggested.

Dr. NINIAN FALKINER pointed out that in cases of congenital retroversion the uterus nearly always came right of itself during pregnancy. This suggested that the retroversion was not really a misplacement of the uterus but merely its natural state. Why was it that a retroverted uterus in a nullipara sometimes caused no symptoms at all, whereas in parous women it almost always caused them?

Dr. QUIN, in reply, said he was glad to note the consensus of opinion about the futility of using a pessary in a nullipara. He had no doubt at all that long-standing retroversion led to trouble at the menopause, and this should be prevented by early operation.

LIVERPOOL MEDICAL INSTITUTION

AT a pathological meeting of this institution held on Oct. 28th, with Prof. R. E. KELLY, the president, in the chair, a paper on recent advances in the study of

Viruses and Virus Diseases

was read by Dr. G. M. FINDLAY of the Wellcome Bureau of Scientific Research, London. There were, he said, two theories of the nature of viruses. The first was that they are minute organised living entities, one generation being the direct descendants of the previous generation; this theory could be traced back to Thomas Fuller, who in 1730 in his "Exanthematologia" spoke of the *particles* which constitute the material and efficient causes of the small-pox. The second theory was that viruses are autocatalytic substances, possibly derived originally from their hosts' cells and capable of synthesising the same autocatalytic substance from their hosts' tissues. Both theories now appeared to be true. Elementary bodies had been described in variola-vaccinia, sheep-pox, fowl-pox, psittacosis, ectromelia, Borna disease, influenza, lymphogranuloma inguinale, varicella and zoster, the Rous sarcoma, infectious myxomatosis of rabbits, and the filtrable fibroma of rabbits. On the other hand, heavy proteins, probably nucleoproteins, had been isolated from plant tissues infected with certain viruses such as tobacco mosaic, tobacco ring spot, cucumber mosaic, potato X disease, and the bacteriophage. Some of these heavy proteins could be obtained in crystalline and paracrystalline form and were apparently themselves the viruses. Heavy proteins endowed with virus infectivity had also been isolated from rabbit papillomata, equine encephalomyelitis, and yellow fever. It was suggested that the heavy virus proteins are in reality proteinases, protein enzymes, capable of synthesising themselves. The term "a new virus disease" had been used in more than one sense—to describe (1) a disease which is new because, though always present, it has been but newly differentiated from other diseases; (2) a disease that has been introduced from some endemic region into another area where it has never previously been seen; and (3) a disease whose causal agent has arisen de novo, probably as a result of a virus modification or mutation. Examples of the first type of "new disease" were lymphocytic choriomeningitis, and swine-herd's disease; an example of the second was the introduction of three-days sickness or ephemeral fever of cattle into Australia in 1936; and examples of the third were (in man) St. Louis encephalitis, and (in animals) infectious myxomatosis of rabbits and equine encephalomyelitis, both of which must have arisen in America since the Spanish conquest.

Although in view of the existence of virus proteins there was still a possibility that viruses may arise from the cell as a result of some stimulus, the pathogenic viruses were nearly always introduced into the body from without. Prevention of virus disease thus consisted in preventing viruses from gaining entrance either to the body or to the cells. Entrance to the body might be prohibited by chemoprophylaxis, applied especially to the nasopharyngeal mucosa—although the danger existed that by the application of chemicals, such as a 1 per cent. solution of zinc sulphate, viricidal substances normally present in the nasopharynx may be destroyed. Immunoprophylaxis, which aimed at neutralising the virus and thus preventing its entrance into the

cell, consisted in the injection either of immune or hyperimmune serum alone, killed virus, virus attenuated by physical or chemical means, or virus accompanied by immune or hyperimmune serum and virus attenuated biologically. Lastly Dr. Findlay called attention to the phenomenon of "virus interference" by which the injection of a mild or apathogenic virus protected the body against the action of a more virulent virus injected a few hours later.

Prof. H. D. WRIGHT said that—as Boycott had pointed out several years ago—the newer physical conceptions of atomic structure tends to make less easy the distinction between live and dead and to make more feasible the conception of evolution from inanimate to animate matter. The conception of "crystalline viruses" of relatively simple structure facilitated the adoption of such ideas from the other direction. These "animated enzymes" fitted well into an order of development leading up to the bacteria, but it should be remembered that viruses are not all alike and represented a range of beings of varying size and possibly of varying complexity. Certainly from some of them substances similar to the specific soluble substances of the bacteria seemed to have been isolated. Dr. Findlay's conception of the nature of the simpler forms bore distinct resemblances to Bordet's idea of the so-called bacteriophage phenomenon as a transmissible bacterial autolysis, in effect a self-reproducing enzyme. The modification of viruses resulting from special manipulations was paralleled in the change of type of pneumococcus effected by Griffith and the phenomenon of interference by some, perhaps doubtful, experiments on "depression immunity" in streptococcal infections. The resemblances between viruses and bacteria still seemed to exceed the differences between them.

Dr. A. E. HODGSON said that recent research gave hope that the causative entity of measles and mumps, and perhaps of small-pox, varicella, and poliomyelitis was nearer recognition. It was also gratifying that the good results in modern measles prophylaxis from the use of "convalescent" and "adult" serum appeared to be based on sound scientific reasons.

Dr. HUGH SMITH spoke of the practical difficulties in the study of virus diseases and admired those engaged upon such work. He pointed out that the organism of pleuropneumonia appeared to be an intermediate link between virus and bacteria. He also spoke of the apparent affinity for certain tissues in virus diseases, and referred to encephalitis lethargica, mumps, measles, and chicken-pox. In passing he mentioned that chicken-pox lesions were fewer and less virulent than formerly.

Dr. T. F. HEWER, in referring to Dr. Findlay's description of the use of primulin to detect elementary bodies of virus in tissue culture, said it was unfortunate that this method could not be applied to fixed tissues. In the case of yellow fever particularly it was often difficult to recognise intranuclear inclusions, and the discovery of a truly specific stain would be of great value in differentiating between the eosinophil products of nuclear degeneration and true inclusions. Our knowledge of the nature of inclusion bodies was at present very incomplete. Dr. Findlay had described the attenuation of viruses in culture; was it likely that such attenuated cultures would reach a stage of equilibrium and maintain their antigenic properties? In New York vaccinia virus was being cultured in large quantities for vaccination purposes in place of calf lymph.

MEDICAL SOCIETY OF LONDON

AT a meeting of this society held on Nov. 8th the chair was taken by Mr. G. H. ROBERTS, the president, and the society discussed

National Physical Training

Sir JOSEPH BARCROFT said that, as a physiologist, he had little practical knowledge of the subject and desired merely to ask a few questions. The first was, how could medicine help the scheme? Secondly, could medicine supply criteria of physical fitness, a yard measure capable of yielding an objective statement from which one group of persons could be declared more fit than another, or more fit than they would have been if they had not performed physical exercises? The definition of the campaign given by the National Advisory Council of Physical Training was very broad: "Physical fitness is not achieved by exercises alone; hygiene, nutrition, and the avoidance of disease must play their part." Two main departments must be considered: the most advantageous development of the inherited bodily powers; and the development of the greatest degree of resistance to disease. He could deal only with the first.

In the course of a recent effort to improve the physique of recruits for the Army 33 men had been selected of a physique so far below the standard as to appear hopeless if they were trained by ordinary methods. At the end of the fourth week 19 had reached the regular standard. At the end of the eleventh week, a medical board found that 24 were fit and up to standard, 6 were on the borderline and likely to become fit and only 2 failed, one through injury, and he subsequently became fit.

Sir Joseph felt some doubt, however, on the absolute validity of the various criteria. Weight had increased from 110 to 118 lb., but how far could a gain in weight be relied upon as a criterion of physical fitness? He had some misgivings about accepting muscular development as the sole criterion without evidence of a parallel general development. The exercise-tolerance readings at the beginning were 88 : 110 : 78, and at the end 84 : 103 : 77. He did not understand this marked slowing of the pulse after exercise, but there might be a perfectly good answer. He had seen similar figures under special conditions of experiment and altitude, but never consecutively in 30 persons all regarded as fit. He asked whether these exercises had been so timed as just to catch this bradycardia and whether their hearts were functionally normal or defective to start with; if defective, had they been improved? Admittedly the heart which did its work on the smallest number of beats was the most efficient. The figures for pulse-rate were much improved except in 4 men in whom the pulse was faster after the test than before. In all fairness, if benefit were claimed in the larger group, detriment must be admitted in the smaller. This raised the disquieting inference that the heart function had not only deteriorated, but the heart had been overtaxed by the course.

These considerations suggested the urgent necessity for medical supervision. The scheme seemed to contemplate the training of teachers as physical training instructors. Could medicine, he asked, show these instructors the point at which a weakly and perhaps undernourished adolescent was being encouraged to put on muscle beyond what his constitution would sustain? Chest measurements might be deceptive if they were increased by the addition of muscle to the thorax. He did not see how physical

exercise could do more for respiration than increase to a certain extent the vital capacity. The size of the chest was limited by its bony structures, and these were not changed by eleven weeks' exercise. If, however, the chest could be trained all through the period of growth, an increase in the power of the muscles might be associated with a real increase in the thoracic cavity. The ideal was to provide better exercises throughout the whole of childhood and adolescence.

The question of nutrition must be faced, for it was an integral part of the problem. He would like to see swept away all question of whether exercise or feeding was the more desirable. An undernourished person could not put out any more power, whatever his training. The diet of the Aldershot recruits was varied and liberal: it averaged the high figure of 4700 calories a day—more than the traditional requirements of the farm labourer. Milk alone was a poor provider of calories. His final question was how the appetite for a robust life could be stimulated. The components of a better life—exercises, feeding, ventilation, freedom from infection—might come under different Government departments, but were actually integral parts of the same thing: health in its highest sense. Here medicine might be asked to play a part, and it must either do so or fail. Through all time, however, medical men had never been lacking in the necessary ideas.

Lord BURGHLEY explained that the problem of fitness had become urgent largely because mechanical transport had almost abolished the need for walking or bicycling, and occupation had become sedentary through the development of industrial machinery. Moreover, leisure hours had increased, and medical science kept alive an increasing proportion of the less fit, so that unless something were done to restore the balance, the average fitness of the population would decline. This country had lagged considerably behind others, which had inculcated not merely the desire to be fit but a feeling of personal pride in fitness. Nearly every department of life was concerned with the problem, but the work of the Council must be limited to its direct dealings with the individual and could not extend to problems like nutrition and smoke abatement. Its work was twofold: to provide facilities such as gymnasiums, swimming-baths, and playing-fields; and to try, using existing organisations, to set up local bodies to perform functions analogous to those of the central council. The Council wished not to make large numbers of potential champions but to bring about a change in the frame of mind of the people, so that they would want to be fit and would be better and happier for being fit. Much research was necessary—e.g., on the effect of violent exercise on fit persons, and of the results of various exercises, not only immediately but in later years; and their relative advantages in producing immunity to disease.

Dr. ADOLPHE ABRAHAMS declared that physical fitness was not merely a question of exercise, and that athletics had in fact a very limited application. Physical fitness meant a perfect adaptation to the environment. Exercise should be looked at mainly from the recreative aspect, which had been very largely neglected. The most suitable forms of exercise varied for each individual. The physical condition of a nation could not be assessed by the achievements of its super athletes, who were not necessarily either fit or healthy persons. The ideal to aim at was to instil into the youth of the nation a pride in the body and a recognition of the right place of physical exercise and of the fundamental needs of hygiene. It would require the continuous application through childhood and adolescence into middle-life of an orthodox system of training which would demand rigorous self-denial and might be deprecated as creating physical neurotics unless a due sense of proportion were maintained.

Mr. A. E. PORRITT said that the place of the athletic star in the campaign was not as an ideal but as a pivot of propaganda; a light to which the humble moth might be attracted but from which he must be protected so that his enthusiasm and incentive were not burnt up in futile emulation. Medical opinion was here of paramount importance. The whole success of the movement depended on its finding a sufficient and a suitable public to work it out. The suitability of any particular candidate for a course in physical training was a medical matter, and a preliminary medical examination must be part of the campaign. Periodical medical examination was equally important so that the activities of the keen might be moderated and guided and the indolence of the slack might be exposed and perhaps prevented. The Council should organise, from the existing medical bodies throughout the country, a medical advisory body representative of general practitioners. Unfortunately the physical fitness campaign had been tacked on to the Government's health campaign instead of preceding it, as it should in accordance with the growing importance of the principle of prevention. The family doctor, if properly organised, would be the best propaganda agent, for he came more closely than anyone else into contact with the minds of the people. A medical advisory council would be capable of deciding on the type of tests and the assessment of their results. This would be a terrific problem, not the least difficult part of which would be to prevent the test acquiring the soulless label of "physical jerks." The campaign should also be associated with the ideal, in some form, of a return to country life.

Mr. DOUGLAS LOWE, honorary secretary of the Amateur Athletic Association, warned the Council against applying to this country without amendment principles which had proved successful abroad. Germany had concentrated too much on what might be regarded as a campaign of being fit at all costs, at the expense of recreation and leisure. He did not suppose that, on a general survey, the population of Sheffield would compare unfavourably with that of Essen, despite the alluring pictures of vigorous and happy youths and maidens hiking in the sunlight of Bavaria. The general practitioner had a vital opportunity to give the lead in this campaign, for he had the ear of the ordinary man and woman on such subjects as simple hygiene and cooking. If young people could be encouraged to seek the advice of the general practitioner the campaign would gain enormously and much faulty training and breakdown would be avoided. The predominant lack of the young person was facilities for exercise, but a second and hardly less important lack was of leaders. Mr. Lowe appealed to university men to spend some of their leisure in guiding and encouraging physical training among young people in their clubs and organisations.

Sir HENRY GAUVAIN pointed out the great value of sunlight, contact with fresh air, and sea-bathing in developing the body and making it fit with the minimum of physical exercise.

Sir WILLIAM WILLCOX stressed the importance of ambition and a happy mind, and drew attention to the splendid physical results of training for ballet-dancing. He advocated horse-riding as an exercise for muscles otherwise little used, and said that perfect

fitness could not be gained by a person who took in extraneous poisons, of which the chief were alcohol and tobacco.

Dr. J. ALISON GLOVER said that the medical profession must do research, must supervise training, and must see that children and adolescents were getting enough food, particularly those at the juvenile instruction centres. The woman of 45 could benefit much from special classes which reduced weight, especially if her diet were also reduced under the advice of a medical man. Doctors, however, must also train themselves, and some of them must personally undergo the intensive training of the instructional colleges to see what it was really like. One of the most important functions of the National College, when it came, would be post-graduate courses for young doctors. They must look healthy and be healthy themselves before they could talk about it to others.

Sir HENRY PELHAM, chairman of the Council, declared that no one would be more delighted than the Council if doctors would give much more thought to the problem of fitness. In the past they had contributed little to its understanding, and the physical training syllabuses, though nominally supervised by the medical officers of the Board of Education, had been largely the work of the practical teacher. He now hoped for first-class and substantial help. It would be impracticable to put all tests under strict medical control; he hoped that the medical man would work out the tests but find some means of making them foolproof in the hands of the lay instructor, who would bring special cases to the medical officer. The ideal must be inculcated, if at all, in the boys' and girls' clubs and in such organisations as the Scouts and Guides, and the person who would be most acceptable there would be the doctor who was prepared after his day's work to make friends with the members and take an interest in their activities. Only a small proportion of students at medical schools —which were chiefly in large centres of population— took any exercise or played any games themselves, even in Oxford and Cambridge, where the facilities were at their door. He appealed to faculties of medicine to provide such facilities as swimming-baths and squash-courts in which students could take exercise in odd half-hours during the day.

REVIEWS AND NOTICES OF BOOKS

Thoracic Surgery

By FERDINAND SAUERBRUCH, Professor of Surgery in the University of Berlin; and LAURENCE O'SHAUGHNESSY, Consulting Thoracic Surgeon to the British Legion Sanatorium, Preston Hall, and Hon. Consultant to the Lambeth Cardiovascular Clinic (L.C.C.). London: Edward Arnold and Co. 1937. Pp. 394. 50*s*.

IT is now several years since a new edition of any part of Sauerbruch's classic work "Die Chirurgie der Brustorgane" has appeared. It is not only for this reason that we welcome this book, but also because it has the rare advantage of being produced, in English, as a result of collaboration between two surgeons of different nationalities and tongues. The writing represents clearly the teachings and practice of a celebrated pioneer in thoracic surgery and does not suffer by translation. The book loses little by condensation from the more massive German volumes of which it is a revised and abridged edition. The illustrations are mostly the same as appeared in the original work, and the new pictures added are of the same excellence.

In a subject that has advanced as rapidly as thoracic surgery there is naturally divergence of opinion reflected in differences of practice. For example, in the performance of lobectomy Sauerbruch clearly does not favour removal of the lung from a free pleural cavity. His method often necessitates a two-stage operation; but it will be recalled that during a visit to this country he once expressed appreciation of the results of the immediate or single-stage operation as practised here, and it would be interesting to learn the results of his experience since that time. The section on the treatment of pulmonary tuberculosis is short considering the space allotted to other subjects; it occupies only eight more pages than does the section on the œsophagus. The impression given is that among the major operations used in phthisis total thoracoplasty is preferred to any of the more limited types of apical operation now becoming popular elsewhere. It is probably for this reason that there is no mention of the Semb-Holst extra-fascial procedure for mobilisation of the apex. Other partial operations receive only passing notice, though their value in selected cases is not denied. The use of the paraffin wax "Plombe" as an extrapleural filling material is detailed, not only in the closure of tuberculous cavities but also in the treatment of suppurative conditions of the lung. The results obtained in deep-seated lung abscess are impressive, but the danger of embolism occurring from pressure on an encysted collection of pus is not sufficiently emphasised. The accounts of intrathoracic tumours are admirable, and the cases that have been personally treated by the authors must make a unique collection. Dermoids are rather neglected and the description of congenital cystic disease of the lung hardly clarifies our views on this subject. The surgery of the heart, diaphragm, and œsophagus is well described. The section on surgical treatment of cardiac ischæmia which owes much to the investigations of Mr. O'Shaughnessy is of special interest. The value of local anæsthesia is emphasised at the expense of spinals, gas-and-oxygen, cyclopropane, &c., which are hardly mentioned. The way in which ether-oxygen narcosis is used in the Sauerbruch clinic in cases of pulmonary tuberculosis does certainly not accord with our views.

The production of the book is highly creditable. The illustrations, as has been noted above, are beyond reproach, and the text is interspersed with short case notes which add considerably to the interest of each section. The bibliography is extensive, though there are a few omissions of recent publications; an author index is appended.

This work constitutes a most important contribution not only to thoracic surgery but to surgery as a whole.

Nelson's New Loose-Leaf Surgery

Edited by ALLEN O. WHIPPLE, M.D., Professor of Surgery, Columbia University; Director of Surgical Service, Presbyterian Hospital, New York. London: Thomas Nelson and Sons. 8 volumes and index. £32 the set.

THIS well-known surgical work has now been issued in a new form much more convenient for the reader as the bindings have been made large enough to accommodate all the contributions; hitherto it has been very difficult to insert some of the sections

into their appropriate place. Moreover the fasteners to the binding are much more suitable and effective.

We have nothing but praise for this immense system of which the eight volumes contain over 6000 pages. The whole field of surgery is covered by experts in every branch, and the work has the supreme merit of being always up to date. When it first appeared a decade ago the project seemed too ambitious to succeed. The doubt that inevitably sprang to mind was whether the editors would actually be able to keep so many distinguished contributors up to scratch for long. Ten years have removed this doubt. Revised versions have arrived regularly, much of the original work has been discarded and replaced, and the present edition is as modern as it possibly could be. When the book first appeared it was incomplete in places, all contributions not having been received. There still seems to be one hiatus between pages 832 and 872 (Vol. III) in the section on diseases of the scalp. We have not yet discovered whether this represents a missing contribution or only an error in binding. Everywhere else where we have consulted the book we have been impressed by the very high standard reached.

This book is dateless in the sense that except for the convenient accessories mentioned above anyone who buys it to-day will be in the same position as a new buyer ten years hence. This should be an encouragement to those who cannot contemplate an outlay of £32 without being convinced they are acquiring a possession that will alter and grow with their future needs. The purchase of this work is an investment which no surgeon will regret. It is to be hoped that the enterprise of those concerned in its production will continue to receive the support they merit. If anything like it has been attempted before on the same scale, which we doubt, it has certainly not been accomplished with success. The advantage of possessing a dynamic rather than a static text-book should require no emphasis, and past experience has shown that the editor and all contributors are to be trusted to keep it moving with the times.

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1. Textbook of Diagnostic Roentgenology

By LEWIS J. FRIEDMAN, M.D., Director, Roentgen-Ray Department, Bellevue Hospital; Instructor in Radiology, New York University College of Medicine. London: D. Appleton-Century Company. 1937. Pp. 623. 42*s*.

2. Lehrbuch der Röntgenologischen Differentialdiagnostik der Erkrankungen der Bauchorgane

By Dr. Med. Habil. WERNER TESCHENDORF, Chefarzt des Strahleninstituts der Allgemeinen Ortskrankenkasse Köln. Leipzig: Georg Thieme. 1937. Pp. 477. RM.42.

1. Dr. Friedman's book suffers from the difficulty of compressing into a single volume extremely varied material. The method of classification chosen has been to separate the various regions and to deal with each disease under the heading of the region in which it occurs. Repetition has been avoided but differential diagnosis might have been given more space at the expense of discussions of rare conditions and the description of methods still controversial, such as the anæsthesia required for ventriculography or the use of Thorotrast. The section on diseases of bones and joints is complete and contains some excellent illustrations, both of common and rare diseases, and some remarkable radiograms of abnormal skulls. The description of the methods used in dental radiography is helpful if very short; the discussion of intrathoracic lesions is rather more detailed. Tuberculous disease and tumours are dealt with on conventional lines but the radiograms are well chosen, and due consideration is given to the fungus infections which are more common than is generally recognised. Dr. Friedman favours the subglottic method as the most convenient way of examining with iodised oil, but does not mention the postures used to show the different lobes. Cardiac mensuration has evidently been found of value; several interesting illustrations show rare conditions, the lines used in measuring being marked on the films. In the sections on the alimentary tract stress is laid on the importance of clinical findings and methods. Lesions of the stomach are well described, but no mention is made of the radiographic technique of serial films, with compression, in the differential diagnosis of ulcers and tumours of the pars pylorica and of the duodenum, although the method of duodenal intubation is explained. The double contrast method for visualisation of the large intestine is also ignored. The book is completed by a good account of gall-bladder radiography, of the various methods of examining the kidneys, and of radiographic pelvimetry. This text-book provides a useful basis of study for students but is not sufficiently detailed to serve those studying for a diploma in radiology or its American equivalent.

2. Dr. Teschendorf's excellent monograph provides a complete survey of the radiological methods employed in the diagnosis of lesions in the abdominal organs, and is so well illustrated that even those whose knowledge of German is limited will find much to interest them. The author makes out a good case for complete examination, lest the observer should concentrate on the obvious when an equally important lesion may be causing symptoms, and he leaves the reader with the impression that little can be missed if the procedures described are systematically and successfully carried out. In the examination of the stomach by means of the opaque meal, the merits of the method particularly associated with the name of Berg are illustrated by some very striking radiograms. This technique, which shows up the mucous membrane pattern in relief, is regarded as providing a most important advance in differential diagnosis. Attention is drawn to pictures of the pattern in the normal fundus and in the sphincter at the lower end of the œsophagus, and to the contrast between the scarring round a simple ulcer, the normal pattern round a polyp, and the blurring of the pattern round a carcinoma. A well-illustrated section is devoted to hypertrophic gastritis and the ulcerative gastritis described by Konjetzny, conditions which appear to be much commoner in Germany than in this country. For visualisation of the duodenum the serial method with compression has also been used, and again a remarkable collection of pictures shows practically every known pathological lesion. Several important points in the differentiation of active ulcers from diverticula due to scarring are brought out, and there are pictures of such rare conditions as carcinoma of the ampulla of Vater, an ulcer perforating into the adherent gall-bladder, and the gall-bladder filled through a fistula from the duodenum. For cholecystography the oral method described by Sandström is used, and a combined oral and intravenous method is also said to give good results. The importance of the plain film is not forgotten; carcinoma of the gall-bladder is clearly seen in two radiograms without contrast medium. Apart from

benign tumours, which are dismissed as too rare to warrant illustration, this section is very complete. Pathological conditions of the small and large intestines and appendix are well shown and also some fine radiograms of the mucous membrane in relief obtained by double contrast methods. For the examination of the kidney, plain films, excretion urography, and retrograde pyelography are used, the pictures of renal tuberculosis and of tumours of the kidney being specially good. The methods used for the differential diagnosis of small kidney stones deserve attention. The last chapter deals with pneumoperitoneum as an aid to diagnosis in obscure intra-abdominal conditions, the outline of the liver and spleen and other solid organs being clearly visible. If we have a criticism to make it is that more reference might be made to work published in other languages than German, but so few points of importance are omitted that this work must rank with the best on the subject yet published in any country.

Clinical Contraception

Second edition. By GLADYS M. COX, M.B., B.S. London: William Heinemann. 1937. Pp. 196. 7*s*. 6*d*.

THIS book contains all the practical information relating to contraception needed by the practitioner in concise, lucid, and readable form. The physiology of reproduction is discussed and the various methods of birth control are described and evaluated. A specially valuable chapter on chemical contraceptives takes account of the recent work of J. R. Baker and H. M. Carleton at Oxford. Public health legislation, the running of birth control clinics, and the keeping of clinic statistics (including failure rates) are all considered. There are a certain number of alterations in this edition; a few new caps and chemicals are described and the discussion of the work on spermicides is brought up to date. In her introduction Dr. Cox states her conviction that the use of a combination method (chemical with a mechanical device) gives the greatest possible security against conception, and that the claims made by manufacturers of the absolute reliability of certain chemical contraceptives cannot be substantiated clinically.

British Journal of Surgery

THE October issue (vol. **25**) contains the following papers:—

ON GALL-STONES AND THEIR SUFFERERS. By G. Gordon-Taylor (London). An historical account of famous patients and their gall-stone attacks.

MOVEMENTS OF THE SHOULDER-JOINT. By T. B. Johnston (London). The author demonstrates that confusion arises by description of movements of the humerus in reference to the trunk, instead of in reference to the scapular plane. This has led to paradoxical conceptions of the rotation occurring during elevation of the arm.

SWELLING OF THE UPPER LIMB FOLLOWING RADICAL MASTECTOMY. By E. A. Devenish and W. H. Graham Jessop (London). Swelling of the arm, not due to secondary growth, developed in one out of every six cases. Treatment by suspension and the fitting of a light rubber corset is described.

A CASE OF RETROPERITONEAL CYST with a clinical study of the subject. By Mahmoud Hafezi (London). The cyst lay between the spleen and the left kidney, and was successfully removed with the spleen. It contained tissue resembling normal intestinal mucosa.

TRAUMATIC RUPTURE OF INTRAMESENTERIC DIVERTICULÆ OF THE JEJUNUM. By R. Weeden Butler (Cambridge). A kick from a mare caused the rupture. At operation, fluid intestinal contents was found in the peritoneal cavity. The patient died.

USE OF THE ERECT POSITION IN CHOLECYSTOGRAPHY FOR THE DEMONSTRATION OF FLOATING GALL-STONES. By James F. Brailsford (Birmingham). The stones are seen as a row of transparent bodies at the fundus, and remain horizontal when the body tilts.

LAMBRINUDI'S OPERATION FOR DROP-FOOT. By F. P. Fitzgerald and H. J. Seddon (Stanmore). An excision is performed of the joint between the astragalus and the os calcis, and the foot locked by insertion of a beak of astragalus into a slot fashioned in the scaphoid. Careful planning of the operation is important.

DERMOID AND ALLIED CYSTS OF THE KIDNEY. By J. Cosbie Ross (Liverpool). Successful resection of a cyst thought to be of epidermoid origin.

SUPERVENTION OF OSTEOGENIC SARCOMA IN PAGET'S DISEASE. By T. B. Davie (Bristol) and W. E. Cooke (Wigan). Two cases are described with multiple foci. The suggestion is that Paget's disease predisposes bone to malignancy, and the determining stimulus is endocrine or metabolic in origin.

PRIMARY PLEURAL CYSTS. By A. L. d'Abreu (Cardiff). In the two cases reported the cysts were extrapleural. The pre-operative diagnosis of cyst could not be certainly made, but excision was safely undertaken.

TWO CASES OF DIAPHYSIAL ACLASIS SHOWING SARCOMATOUS CHANGE. By E. K. Gardiner (London). The pubis and the femur were respectively involved. The change is said to be locally malignant, and produces a sudden increase in the size of the exostosis.

CARCINOMA OF THE CHEEK: an original method of treatment, with reports on ten cases. By Norman Patterson (London). The skin is loosened by incision along the lower edge of the mandible, and the tumour excised from the mucous surface.

CONGENITAL ARTERIOVENOUS COMMUNICATIONS, with a report of two cases. By John Gilmour and Mason Bolam (Newcastle-upon-Tyne). In both patients the abnormal network of communications was around the ankle and dorsum of the foot. The circulatory disturbances necessitated amputation.

RECTUS TRANSPLANTATION FOR MIDLINE INCISIONAL HERNIÆ. By H. C. W. Nuttall (London). The two recti were detached from their pubic attachments overlapped and reinserted on their opposite sides.

EXCISION OF THE RECTUM. By Sir Hugh Devine (Melbourne). The author describes his own modifications of the perineo-abdominal operation by which, in selected cases, he is able to preserve anal sphincter control of the divided bowel.

SARCOMA OF THE BLADDER. By George Y. Feggetter (London). In a child of ten years partial cystectomy was performed a year ago and is so far successful. The diagnosis and treatment is discussed.

EVOLUTION AND DEVELOPMENT OF SURGICAL INSTRUMENTS. By C. J. S. Thompson (R.C.S. England). The evolution of the amputation knife is traced from Roman times up to the time of Liston's long, narrow-bladed knife.

GASTROPTOSIS. By H. Stiven (Cairo). A post-mortem specimen is described of a case in which Lambert's operation had been performed a year before death from nephritis. The operation consists in slinging the stomach by means of a strip of rectus sheath passed in between the ribs. It is described in detail.

PROBLEM OF THE BLEEDING PEPTIC ULCER. By G. Gordon-Taylor (London). A comprehensive review, including the author's experience and practical conclusions.

SURGERY OF THE SYMPATHETIC NERVOUS SYSTEM. By J. R. Learmonth (Aberdeen). A critical survey of the success and failure obtained in different clinical conditions.

A description is included of a visit to the Central Emergency Hospital, Moscow, and there are also short accounts of cases of special interest.

THE LANCET

LONDON: SATURDAY, NOVEMBER 13, 1937

POLIOMYELITIS: THE PORT OF ENTRY

INCREASED incidence of acute poliomyelitis has recently been causing anxiety in this country as well as in Australia and the U.S.A., and the search for a remedy goes on. The problem of immunity to the virus has been studied continuously ever since its discovery in 1909, but the mechanism of its production still eludes us. At one time it was thought that the principal factor ensuring this immunity was specific antibody, and it was on this assumption that the treatment of poliomyelitis in the preparalytic stage by means of convalescent serum was advocated and practised. A more critical attitude to the evaluation of this therapeutic measure showed that the earlier reports of its value were, to say the least, too optimistic, and a better understanding of the route of infection followed by the virus has furnished the reason. Although most authorities hold that the route by which it invades the body is the nasopharyngeal mucosa, this thesis is not universally accepted. There are some who believe that the virus may be absorbed from the intestinal tract, reaching the central nervous system via the lymph and blood streams. Some four or five years back KLING and LEVADITI, in conjunction with their colleagues LÉPINE and HORNUS, advanced experimental evidence in support of the alimentary route. More recently J. A. TOOMEY in America has published [1] a summary of data questioning the nasopharynx as a port of entry. S. FLEXNER,[2] a pioneer in this field who has recently returned to the investigation of problems connected with poliomyelitis, has however failed to confirm any of this work. He shows that monkeys do not develop poliomyelitis when virus is introduced into the stomach provided contamination of the buccal and nasal mucosa is avoided. He points out further that in the type of experiment where virus is injected direct into the small intestine, infection, when it does occur, is most probably the result of virus passing into the intestinal wall and making contact with nerve-fibres there. FLEXNER gives his entire support to the view that the mucosa of the nasopharynx is the only established portal of entry of poliomyelitis virus—a conclusion which is shared by most workers. Obviously this has a direct bearing on the mechanism of immunity to poliomyelitis, for were the alimentary route of infection the usual one, with distribution of the virus by the blood stream, neutralising antibody would play a more important rôle in preventing infection than it could do if the nasal route was substantially the only one by which virus entered.

[1] *J. Amer. med. Ass.* August 7th, 1937, p. 402.
[2] *J. exp. Med.* 1936, **63**, 209.

FLEXNER has also studied [3] the response of monkeys to nasal instillation of the virus of poliomyelitis. This animal is relatively resistent to infection by the nasal route unless, as E. W. SCHULTZ has shown, the mucosa is prepared by treatment with a buffer solution of acid reaction. But FLEXNER has found that even when the monkey does not develop poliomyelitis as the result of nasal instillation, it does not remain indifferent to this treatment. Quite constantly a reaction occurs in the cerebro-spinal fluid consisting of a lymphocytic pleocytosis and associated increase of cells; less constant is the appearance of detectable amounts of globulin. Often there is a concomitant rise of temperature and although these changes are similar to, though of less degree than, those occurring in the monkey which develops manifest infection they are not associated with the development of immunity. This inapparent infection in the monkey gives rise to no production of specific antibody; the animal may develop paralytic disease when given a further course of nasal instillation of virus and it is as susceptible to cerebral inoculation as the normal monkey. Apparently frank infection is necessary for development of immunity in the monkey, and if our belief is true that man commonly acquires immunity to poliomyelitis as the result of symptomless infection then one must conclude that the two species differ markedly in their ability to develop immunity. FLEXNER further shows [4] that when immune monkeys are given virus by the nasal route some two years after recovery, not only will they react with changes in the cerebro-spinal fluid and pyrexia, but a considerable proportion of them will develop frank and even severe second attacks. This may occur whether the homologous or a heterologous strain of virus is used to reinfect and even when the monkey has been hyperimmunised after the first attack of poliomyelitis. Admittedly the amount of virus instilled into the nares in these experiments is enormously greater than man is likely to receive in the natural course of events; but second attacks of poliomyelitis are known to occur in man, possibly with greater frequency than we at present imagine. This lack of durability in acquired immunity to poliomyelitis is an aspect of the subject which must be borne in mind when considering the mechanism of immunity to poliomyelitis and the prophylaxis of the disease.

[3] *Ibid*, 1935, **62**, 787.
[4] *Ibid*, 1937, **65**, 497.

THE OUT-PATIENT

ON another page some account is given of how the British Hospitals Association is facing the first three recommendations made by the Voluntary Hospitals Commission appointed at its annual conference in June, 1935. The question of the areal distribution of hospital facilities is fundamental, but when that has been dealt with there will remain the problem of overcrowded out-patient departments about which the Commission had something trenchant to say in its report last April. The gravamen of this complaint is that the

time of the staff is wasted on trivial cases and the habit of hasty diagnosis is fostered, leading as a result to erroneous and inefficient treatment. For the situation stated in this rather sweeping indictment the Commission finds the remedy in the restriction of attendances at out-patient departments "to those persons who should properly take advantage of them." Further definition reveals that it is considered proper for a person to take advantage of the hospital out-patient department only in emergency or when armed with a recommendation and letter from a medical practitioner for the purpose of a consultative opinion. It is admitted that it would be difficult and inadvisable to enforce at present a general rule restricting out-patients in this manner, but we detect an air of reluctance in the admission, for the report plainly encourages the voluntary hospitals to solve the out-patient problem by developing their departments "along these restrictive lines."

While it is now generally accepted that a large proportion of the attendances represent work which should ideally be done by general practitioners, there is a strong feeling among some of those most deeply occupied in this out-patient work that it would be tyrannical as things now are to limit it to recommended patients. In this view there are other directions in which relief should be sought, involving no hardship and bringing out-patient practice into line with the best medical tradition. If there are physicians and surgeons to out-patients who find their time wasted in trivialities, they can correct the fault without putting into motion the heavy machinery of national legislation. A little primary sorting is all that is required and this will serve another purpose in providing an excellent clinical exercise for some junior member of the staff. Or again, surely it is not a sin, in these days of ponderous instrumental investigation, to foster in at least one department of the hospital the art of quick diagnosis, so long as it is backed by clinical experience and based on an intelligent examination. It is safe to predict that in our time no general rule will be enforced restricting the out-patient department to those who carry practitioners' letters. If there is an out-patient problem other remedies than this will have to be found for it; but as there are probably as many problems as there are out-patient departments, the remedies will have to be found within and not imposed from without. It is true that the tedium and anxiety of waiting in a crowded hall is a common source of complaint which should be alleviated. But this at least would not be solved by restricting the patients to those who carry letters, for the biggest crowds are to be found at the doors of those out-patient physicians and surgeons who are most popular with the practitioners. In some quarters it has been suggested that in order to save this waiting out-patients should be permitted to book appointments. This is already done for most patients who must attend for repeated treatments in special clinics, but it is asking too much of the larger hospitals to arrange it for all the patients at their first attendance. The arrangement would not work. Some waiting is probably inevitable and it must be remembered that to seek advice as a new out-patient is a thing which comes not many times in the life of a man or woman. For those who feel the anxiety of waiting remedies could be found in many simple devices. We might start by demanding a little more paternalism in the reception staff, and by making our out-patient halls less like the resorts of railway travellers benighted in a London terminus. These are simple problems of internal arrangement which each hospital could solve for itself, and solve very quickly if a few members of managing boards would make the experiment of waiting anonymously on their own wooden benches. This would be time not unprofitably spent.

If we accept the view that the voluntary hospitals intend to keep an open door for the sick poor and provide facilities for consultation such as are available to the more wealthy members of the community, then the out-patient problem resolves itself into sieving out those who can afford to pay for their consultation elsewhere, and providing for the remainder an adequate staff to examine them and adequate equipment for that staff to do its work. The staff can be readily reinforced by clinical assistants or associate out-patient physicians drawn from the ranks of graduates who are seeking such opportunities, not necessarily with a view to establishing contact with general practice in the neighbourhood. The posts should have a strict time limit, and carry a small salary. Continuity of interest should be maintained by arranging the clinics so that each corresponds to an in-patient ward in which the out-patient staff can follow the progress of cases they have admitted. Some would say that the crucial point of the out-patient problem lies in the rapid development of special clinics. It is inevitable that progress will carry us in that direction but it may be asked what are its safe limits. Orthopædic clinics, fracture clinics, speech defect clinics, venereal disease clinics, diabetic clinics, asthma clinics, rheumatic clinics—all these and many more may seem desirable, but it will remain a pretty problem in administration—or should it be harmonisation?—to keep these departments in the full tide of the out-patient work and to prevent them from becoming little backwaters of specialism.

RECURRENCE OF HERNIA

No surgeon, unless he takes extraordinary trouble, sees enough of his results. The patient who has had an unsuccessful operation for inguinal hernia is less likely than many others to return to say so, for he still has a more or less useful palliative in the wearing of a truss. Hence the surgeon can seldom honestly regard the failures he sees as being all that have occurred in his practice, and there is the more value in such a comprehensive survey of results as that recorded in the *Annals of Surgery*.[1] The most striking feature of this survey perhaps is the lack of success reported by surgeons of the Hospital for Ruptured

[1] *Ann. Surgery*, 1937, **106**, 322.

and Crippled in New York in cases treated by injection of sclerosing solutions and by fascial suture. The protagonists of these forms of treatment claim for them a very high proportion of cures, but these New York surgeons have been convinced after extensive trial that the products both of injection and of fascial suture are unsatisfactory. CARL G. BURDICK and BRADLEY L. COLEY report that they have decided to abandon entirely the method of injection, while, after an experience of 1485 operations in which fascial suture was employed, BURDICK and his collaborators, DAVID GILLESPIE and NORMAN HIGINBOTHAM, were so little impressed that for two years they have scarcely ever employed fascia. The recurrences in their fascial suture operations numbered 284 among 975 cases followed for periods of one to eleven years after operation. This figure of 29 per cent. of recurrences is disappointingly high and is partly attributable to a greater incidence of sepsis, which was about 8 per cent. with repairs by autogenous fascia and about 12 per cent. with repairs with ox fascia. BURDICK mentions that the introduction of a large needle through the transversalis fascia and Poupart's ligament often left a weak spot that predisposed to a recurrence. In reoperation no remains of fascial sutures were found.

BURDICK and COLEY conclude from observation of 66 patients with 92 herniæ that the uncomplicated indirect inguinal hernia is alone suitable for injection treatment. They have employed in turn all the usual solutions (Piña Mestre, Galtanol, O'Malley, Proliferol, and thuja), and they are not impressed with the results of any of them. With the indirect hernia they believe there is some chance of success, but they think it very unlikely that if there is a definite gap in the muscular and fascial supports of the inguinal canal—as in a direct hernia—injection can "build up" tissue that will produce a strong resistant abdominal wall. They found the immediate results gratifying, and for three or four months the hernia could be kept in abeyance by an occasional injection. However, in 47 of 56 cases which remained under observation a definite relapse was noted by the patient and the doctor, and at the time of reporting only 11 cases were apparently cured, in 9 of which trusses were still being worn. As repair in the injection method depends on the formation of scar tissue, relapse by stretching of the scar is always a possibility where the tissue is used to bridge a gap. Success is more probable where the effect of the injection is to glue together intact muscular planes in an indirect hernia. Several of the surgeons are strongly in favour of silk as a suture material, and LAWRENCE S. FALLIS uses it in 96 per cent. of his cases. In the discussion that followed the reading of these papers before the New York Surgical Society, FRANZ TOBEK uttered a warning against the use of absorbable material in suturing the rectus fascia to Poupart's ligament under tension, and H. M. GILLESPIE said that lack of tension was essential for strong healing, the silk technique being more likely to ensure this than the fascial.

FALLIS has made a special study of 200 cases of recurrent hernia admitted to the Henry Ford Hospital in Detroit. As he wisely remarks, no knowledge is to be gained, nor any advance made, by attributing failure to poor structures, faulty suture material, or too early return to work—to anything in fact other than technical error at the primary operation. It is his experience that a hernia that has recurred three or even four times can be satisfactorily repaired. With indirect hernia he believes that recurrence is primarily due to failure to obtain a high ligation of the sac, while with direct hernia it is due to failure in repair of the rupture of the transversalis fascia. A definite history of injury preceded recurrence in over a third of his cases. There was a greater liability to recurrence on the left side in double hernia, and this can be partly attributed to the fact that the right side is usually dealt with first and the tissues may be stretched to that side. H. W. C. NUTTALL, in the October issue of the *British Journal of Surgery*, describes a successful method of mastering the overstretching of tissues that militates against successful repair of midline incisional herniæ. He detaches the recti from their pubic insertion, overlaps them, and reinserts them on their opposite sides. The impression left by reading of the American symposium on hernia is that the older methods of operation have proved of most value, and that success depends on detail. Among the essentials are high ligation of the sac, attention to the transversalis fascia, and (very particularly) suture of all structures without tension and overstretching.

THE SOVIET UNION AND MEDICINE

TWENTY years ago to-day, in the capital of a Russia ruined by war, a handful of extremists, who had just appointed themselves the Workers' and Peasants' Government, were struggling for existence and power. Their success was to say the least unlikely; yet in these twenty years their efforts have brought about a renaissance, a reformation, and an industrial revolution in their country; so that a survivor among them now rules over a huge nation incredibly changed by socialist ideas. The application of these ideas has not always been the same: a period of communism was followed by a relapse into minor capitalism, and in its present phase the Russian State is nationalist in a way that nearly all its makers would have condemned. The Russian State to-day calls itself a democracy but can be called a dictatorship. Nevertheless those who find it indistinguishable from other dictatorships err through ignorance. Better it may be; worse it may be; but it is certainly different. The Soviet Union is and remains essentially socialist in that it has abolished private profit as the motive force of society; it has transferred the power of capital to the service of the community as a whole, and (so runs the claim) it has abolished the exploitation of man by man. The activities of the country are planned, and the criterion in planning is not—as usually in capitalist States—whether a particular

project will "pay" but whether it is needed more urgently than another. The abolition of private capitalism has meant the end of all the trades we call finance, and of overhead charges like advertising; and according to its advocates scientific planning has broken the trade cycle of slumps and booms, so that the Soviet citizen may look forward (apart from war) to uninterrupted progress towards a high standard of living and much leisure. All this has not been achieved without cruelty and terror, but as a medical historian puts it,[1] "the question is no longer 'Will the Soviet government succeed in its experiment?' but 'What will be the effects on the coming generation of this new order of life?'" For those interested in this question no guide can be more useful than the masterly survey prepared by SIDNEY and BEATRICE WEBB under the name of "Soviet Communism: a New Civilisation?" And it is significant that, despite the ominous weaknesses lately displayed by the Soviet régime, these authors' faith has grown in the past two years so that in the title of the second edition[2] they have dispensed with the question-mark. It would be rash to doubt their judgment without reading the relevant chapters of their book.

A new civilisation is not necessarily a finer civilisation; for example it might display the dedifferentiation characteristic of malignant change. But when it affects a sixth of the inhabited surface of the world it demands study, if only by way of warning; and accurate knowledge of a State in which socialism grows in a comparatively pure form is of extreme importance to those who live in countries where socialism has been grafted on the capitalist stem of society. The socialist measures applied in this country—chiefly by conservative governments—affect the medical profession particularly closely, and their proponents and opponents alike must consider how far an unrestricted or fundamental socialism would be consistent with the best medical service. Prof. HENRY SIGERIST has therefore done something really useful in writing the first adequate English account of medicine in the Soviet Union.[3] In his introduction SIDNEY WEBB says truly if somewhat unkindly that this account "must supersede, for every inquirer, nearly all the scores of little books produced by the British and American doctors who have, during the past twenty years, made holiday tours in the U.S.S.R., and have told us, one after another, what they happen to have seen." Dr. SIGERIST, who now holds the Welch chair of medical history at Johns Hopkins University, is not above studying history in the living, and this the first book he has written directly in English, rather than in French or German, reflects a glowing intelligence occupied with the fundamentals rather than the externals of medicine. He has spent much time in Russia, and seen and heard much there; and it is notable that one so well acquainted with men and cities should end his book with the words: "Since I have studied the Soviet Union, I know that there is a future for mankind; that whatever may happen to the Western world, there is a future for human civilisation. And I know, in addition, that our highest medical ambitions are not utopian but may some day be realised."

From the above passage it will rightly be guessed that Dr. SIGERIST started his investigations as a benevolent rather than a hostile critic, and his book would have been better if he had anticipated more of his readers' doubts and said more about failures and defects. He barely suggests that there may be a difference between the new Constitution on paper and the new Constitution in practice, and he does not say much about the suffering caused by such major social operations as the collectivisation of agriculture. Dr. GANTT is more objective if less pleasant when he recalls a story of the shooting of all the inhabitants of plague-stricken villages and remarks:

> "Such severe methods, characteristic of the present government, though seemingly cruel, were perhaps justifiable under the circumstances; they are responsible for the order prevailing even under the stress of the terrific living conditions during the First Five Year Plan as well as for the amazing and varied accomplishments of the Soviet régime."

Dr. GANTT also thinks that in "replacing the private by a governmental doctor and providing free treatment for the employees, the State, in spite of remarkable progress, has attempted a larger task than it has been able at present to solve adequately. Doctors and medical personnel are tired, overworked and often indifferent, the system is slow and cumbersome, so that the patient is frequently 'well or dead' before his turn comes for the sanatorium." But if Dr. SIGERIST has painted Soviet society and Soviet medicine at their best rather than their worst it is because he cannot get over his pleasure at seeing preventive services planned intelligently and comprehensively; at seeing the money barrier between doctor and patient removed; at seeing the battle against disease fought by the people as a whole. In Russia—

> "the medical workers are considered the cadres in the fight for health. This implies that they are not alone in this struggle but are merely the experts guiding the people. It is a mistake of capitalist medicine to assume that disease can be fought successfully by the medical corps alone. This is like going to war with officers but without soldiers. The entire population has to be mobilised permanently to win health."

He finds much less bureaucracy than he expected and "infinitely less red tape than in those European countries that have social insurance," while industry and recreation are alike infiltrated by the ideals and practice of preventive medicine. Where else, indeed, are pregnant women released from work on full wages for 56 days before and 56 days after

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[1] Clio Medica: Russian Medicine. By W. Horsley Gantt, M.D., Johns Hopkins University School of Medicine. New York: Paul B. Hoeber Inc. 1937. Pp. 214. $2.50.

[2] Soviet Communism: a New Civilisation. Second edition. By Sidney and Beatrice Webb. London: Longmans, Green and Co. 1937. 2 vols. Pp. 1326. 35s.

[3] Socialised Medicine in the Soviet Union. By Henry E. Sigerist, M.D., William H. Welch Professor of the History of Medicine, Johns Hopkins University. London: Victor Gollancz. 1937. Pp. 382. 15s.

pregnancy? If one forgets the shortcomings and thinks of the aims pursued there so sincerely and with such increasing success the U.S.S.R. undoubtedly seems a happy country to those whose thoughts are on social welfare rather than on freedom to trade, to learn, to live, or to think independently—some of which may come with prosperity. Meanwhile so far as medicine is concerned Dr. SIGERIST has provided the ammunition of fact so urgently needed by friend and by foe whenever they rise above mere adulation or mere abuse.

ANNOTATIONS

FAMILIAL PERIODIC PARALYSIS

ABOUT two years ago Dr. Mary Walker [1] briefly reported a case of familial periodic paralysis in which remarkable metabolic observations had been made. The patient's disorder was diagnosed at Guy's Hospital early in 1935, and he was admitted to St. Alfege's Hospital in May of the same year when the biochemical investigation was begun. It was there found that in this patient the distressing attacks of paralysis, which had generally been considered to be spontaneous and of uncertain ætiology, could be precipitated by taking 200 g. of glucose by mouth; and it was also discovered that the serum potassium was lower during an attack than at another (normal) time. Unfortunately the patient discharged himself from hospital; but after being lost to view for nearly a year he was readmitted in a severe attack during which the observations on the serum potassium were confirmed. The next act took place in St. Leonard's Hospital where one spontaneous and one induced attack were dramatically cured by the administration of 12 g. of potassium chloride by mouth. In August, 1936, the patient turned up at Hammersmith Hospital where the findings already described were confirmed and it was shown that the administration of insulin with the glucose intensified the severity of the paralysis; it was also shown that the attack was not caused by hypoglycæmia but rather the passage of large amounts of glucose from the blood stream into the muscles. It was also found that a small fall of serum potassium took place in normal persons under these conditions, so that the investigators conclude [2] that the primary factor in the induction of the attacks may be an abnormal lability of the serum potassium. Be that as it may, they are to be congratulated upon their success in pursuing their patient from hospital to hospital and in discovering not only a cause but also a cure for this rare familial disease. Further progress will probably be rapid and it is to be hoped that the ætiology of the disorder will soon be much more fully understood.

DIPHTHERIA TOXIN AND VITAMIN C

A WHILE ago [3] we drew attention to the clinical improvement observed by various workers when patients with whooping-cough were given vitamin C (ascorbic acid). Administration of this substance was based on the belief that it antagonises pertussis toxin, this belief being supported by the observation that the acid—perhaps by an oxidation-reduction reaction [4]—inactivates diphtheria toxin in vitro. Furthermore, as Pakter and Schick [5] point out, Szent-Györgyi's discovery that hexuronic acid in the suprarenals corresponds in chemical composition with vitamin C has directed attention to the part this vitamin may play in illnesses, notably diphtheria, in which damage to the suprarenals is thought to be of importance. These workers agree that in guinea-pigs killed by diphtheria toxin hæmorrhagic changes in the suprarenals are demonstrable, but say that in the clinical picture of diphtheria the connexion between peripheral circulatory failure and other symptoms and damage to these glands has been denied. It is true, they add, that in the past the effect of adrenaline in clinical diphtheria and upon diphtheria toxin has been studied, and that it was at first believed that it had a neutralising effect upon the latter, but V. Gröer and Kassowitz are quoted as being unable to demonstrate any such neutralising antitoxic action. Pakter and Schick observe that diphtheria toxin is affected by acid and that commercial adrenaline is very acid; in vitro, adrenaline *does* inactivate diphtheria toxin but it is possible to reactivate it and therefore adrenaline does not act as an antitoxin. Similar experiments with vitamin C have shown that in vitro it too at length brings about the neutralisation of diphtheria toxin, and Pakter and Schick thought it would be useful to study the effect of vitamin C upon the Schick test in the human subject. Accordingly before the test was performed (with the accepted dilution of toxin and the usual technique) vitamin C was given orally, intramuscularly, and intravenously. Apart from differences that could be accounted for by slight faults in the technique of the test, no variations in its intensity were observed even when as much as 1000 mg. of vitamin C was injected intravenously, or when large doses were given orally for a week before the test was performed. The investigators conclude that vitamin C has no antitoxic effect upon diphtheria toxin.

HORMONES IN INSECTS

INSECTS, and foremost among them the fruit-fly drosophila, have always formed one of the most important media in which to study the laws of inheritance. Nowadays much interest is being taken in the chemical mechanisms by which the genes, the units of inheritance, bring about their effects; and it is likely that in this sphere also insects will furnish valuable material for study. The "vermilion" eye colour of a certain strain of drosophila has been shown to be due to the lack of a chemical factor, secreted into the blood, for the production of which a particular gene is required. The normal or wild-type drosophila produces this substance in many of its tissues; so that if, for example, the malpighian or excretory tubules are transplanted from a normal larva to a "vermilion" larva this will develop eyes of normal colour.[1] Likewise in the meal moth ephestia a "gene-hormone" is necessary to convert an insect with red eyes to the normal black eyes. This "hormone" may exert its action upon the next generation. For if a female of the red-eyed race and destined to produce offspring of the same character has had implanted in her the ovary or testis of a normal

[1] *Lancet*, 1935, **2**, 47.
[2] Aitken, R. S., Allott, E. N., Castleden, L. I. M., and Walker, M. B., *Clin. Sci.* 1937, **3**, 47.
[3] *Lancet*, Sept. 25th, 1937, p. 749.
[4] Kligler, I. J., Leibowitz, L., and Berman, M., *J. Path. Bact.* September, 1937, p. 415.
[5] Pakter, J., and Schick, B., *Ljecn. Vjesn.* October, 1937, p. 446.

[1] Beadle, C. W., *Amer. Nat.* 1937, **71**, 120.

insect, the hundred or more offspring which she bears will have dark eyes approximating to the normal type.[2] Insects also provide a new and promising source of material for the study of hormones regulating growth and reproduction. A hormone, apparently secreted in some part of the brain, causes caterpillars to turn into chrysalides and so to metamorphose into their adult state. If ligated round the middle by a thread at the appropriate time, the front half turns into a chrysalis, the back half remains a caterpillar.[3] All insects grow discontinuously; their epidermal cells secrete at intervals a new and larger cuticle and then cast off or "moult" the old one which has become too small. As has been proved in the bed-bug and its larger relations, moulting is induced by a hormone. In these same creatures, and probably in other insects also, another hormone keeps the body juvenile in form until it is full grown; it prevents metamorphosis. This hormone is secreted by a little gland, the corpus allatum, which lies just behind the brain, and if this gland is transplanted from a young bug into one about to become adult, the bug will continue to grow and yet retain its juvenile form; it becomes a giant nymph or larva. Conversely, the very youngest bugs may be caused to turn into diminutive adults by depriving them of this restraining hormone. It is interesting to note too that in the adult bug the corpus allatum produces a gonadotropic hormone responsible for egg production in the female and for the activity of certain of the glands of the male.[4] For the elucidation of the chemical constitution of hormones the insects may not be favourable material; but for finding out how and where they act upon the cells the small size of insects may be a positive advantage.

FOOT-AND-MOUTH DISEASE

THE present widespread epizoötic of foot-and-mouth disease in cattle, sheep, and pigs consists of a number of apparently unconnected outbreaks which have invaded with special severity the eastern counties, Suffolk, Norfolk, Essex, and Kent, whilst Lincolnshire, Yorkshire, and Surrey have also suffered. Until September there had only been two fresh outbreaks in Great Britain since December, 1936. The numbers of outbreaks during the years 1927–36 varied from 8 to 143, but there is no evidence of persistent foci in the flocks or herds or elsewhere. As on some previous occasions, a serious epizoötic in this country now coincides with unusual prevalence of the disease on the continent of Europe, though the connexion between the two areas cannot be traced. Foot-and-mouth disease has during this century been endemic in several European countries, but its existence has been only intermittent in those countries which like Great Britain have adopted a stamping-out policy with slaughter. This has been the practice for some years in Sweden, Norway, Denmark, and Switzerland. In France the disease has been combated by attempted isolation of foci, and in Germany by isolation and a method known as "Ringimpfung," by which the contacts are given a combined inoculation of virus and hyperimmune serum and all the animals in an outer ring a dose of serum alone. Periods of complete freedom from the disease have been recorded in Germany only on three occasions, in 1905, in 1909–10 for eleven months, and in 1936 for six weeks; the worst year was 1920 when 118,728 farms were infected at the same time. Since January, 1931, when 6530 farms were simultaneously infected, the number has decreased till in 1937 the monthly records were none above 8 and in August only 1 farm was infected. On Sept. 1st there were 7, on Sept. 15th 72, on Oct. 1st 269, and on Nov. 5th over 1000. In France not much disease existed in the spring of this year, but later it increased till on Sept. 11th it was widespread, so that 61 out of 90 departments were involved. It is suggested that the fresh epizoötic was imported from Algeria, where after apparent freedom in February and March foot-and-mouth disease became generally prevalent at Oran. At first it was thought that the fresh invasion of Europe was caused by a new type of virus insusceptible to the serum hitherto made in Europe—e.g., the polyvalent serum made at Riems by Prof. Waldmann—but Waldmann now states that the type of virus is not unusual though the illness is rather more severe than of late years. The view that the epizoötic spread from France to Germany is supported by the previous prevalence near the frontier in France; Belgium and Holland are also severely attacked after a period of complete or relative freedom. How the infection can have passed from the Continent to this country is quite obscure. It is known that the virus can be transported not only in living animals but also by human agency on lifeless objects, and especially in meat or bones of animals killed during active disease. Investigation of these and other methods of infection have been recorded in the five progress reports of the Foot-and-Mouth Disease Research Committee and the reports of the Ministry of Agriculture.

PREVENTION OF SILICOSIS IN THE POTTERY INDUSTRY

IT looks as if we are within measurable distance of being able to abolish silicosis from the china branch of the pottery industry. Sutherland, Meiklejohn, and Price describe[1] work designed to bring this serious industrial risk under effectual control. The investigations they describe are important in themselves and are noteworthy also because they could only have been carried out by means of the whole-hearted coöperation of industrial workers, of members of the technical and managerial staff of two large industries, and of a number of medical clinicians and research workers. In 1926 Sutherland and Bryson showed that silicosis is rife among workers in the pottery industries and that one or two special processes in the industry accounted for a very large proportion of the total incidence. Pulverised flint (practically 100 per cent. free silica) used in the "placing" of china clayware for the biscuit firing appeared to be the major risk. This process involves the placing of unburnt china-clay cups, plates, &c., upon beds of powdered flint within pans, which are called "saggers," or in "setters." For some years practical potters, aided and guided by the suggestions of the technical chemists, sought a medium that would fulfil the exacting requirements. In 1929 the manager of one of the firms concerned suggested that calcined alumina (Al_2O_3) might prove to be a satisfactory substitute. Various difficulties of adaptation had to be overcome and it was not until 1935 that the practical aspect of the work was far enough advanced to make it necessary to inquire whether alumina itself is free from danger to health. On behalf of the Home Office the problem was taken up by the committee on industrial pulmonary disease

[2] Kühn, A., *Dtsch. med. Wschr.* Oct. 15th, 1937, p. 1595.
[3] Kopec, S., *Biol. Bull. Wood's Hole*, 1922, **42**, 322.
[4] Wigglesworth, V. B., *Quart. J. micr. Sci.* 1934, **77**, 191; 1936, **79**, 91.

[1] *J. industr. Hyg.* September, 1937, p. 312.

of the Medical Research Council and the works of the British Aluminium Co., Ltd., at Kinlochleven and Lochaber were chosen for the investigation of this problem. Certain of the men at these works are exposed to a considerable amount of alumina dust of a very fine order, and at the same time to fumes containing traces of fluorine which is generated in the decomposition of cryolite. Some of these men were subjected to a clinical and radiological examination, designed first towards ascertaining whether there is evidence of lung damage following exposure to alumina dust, and secondly, whether there is evidence of any pathological effects resulting from the absorption of fluorine. The number of cases examined was 49, among whom the period of exposure varied from 5 to 39 years. No evidence of pneumoconiosis or other lung disease arising from the dust was discovered and there was no indication that any system or organ was adversely affected by it. The outcome of the inquiry so far justifies the conclusion that alumina does not produce lung disease under the conditions met with and is therefore infinitely to be preferred to powdered flint for the bedding of china biscuit ware in saggers.

As to fluorine, no lesion arising from this gas was discovered, but the suggestion is made that a biochemical investigation of the body tissues for fluorine and other gases produced in the furnace-room should be made. We shall watch with interest the results of the application of the new process.

DRUGS FOR INDIA

THE extent to which the practice of drug adulteration exists in India was revealed in the report of the Drugs Inquiry Committee. Internal legislation alone can put a stop to it, and this is the prerogative of the provincial governments. The central legislature can only regulate imports, and the Import of Drugs Bill, recently introduced in the Assembly and referred to a select committee, is limited in its scope and will not when it becomes law put a stop to adulteration in the country itself. It can ensure that the drugs which are landed at Indian ports conform to certain standards, but it cannot ensure that the drugs will be of the same standard when they reach the consumer. It may be hoped, however, that the example which the central legislature is setting will be followed in the provinces, and it may well be that through the influence of the press which, for a long time, has been enlightening the public in this matter of sophistication, the provincial governments will be induced to follow the lead of the central government. Be that as it may, the Bill to regulate imports, which is based upon the recommendations of the Inquiry Committee, will serve a useful purpose even if it does no more than stop the entry of inferior goods. It can be readily understood that some exporters to a country where there are no standards of purity may be less careful about the quality of the drugs shipped to that destination than they are when the goods are exported to countries where drug laws are rigidly enforced. This is no reflection on British drug firms which trade with India for it must be remembered that the ports of India are open wide to all comers, and that a considerable proportion of imports are received from the Far East and elsewhere. The standards which the Bill seeks to set up are, in the cases of drugs and medicines, those of the B.P., the B.P.C., and the Extra Pharmacopœia published by direction of the Council of the Pharmaceutical Society of Great Britain. In the case of vaccines, sera and other biological products the standards are those proposed by the Permanent Commission on Biological Standardisation of the League of Nations or those prescribed by the B.P. The powers which the Bill seeks to confer on the central government are not confined to the regulation of staple products but extend to proprietary medicines; there are no standards for such articles but they will fall into the "misbranded" category if the container "bears a statement or device relating to the drug or ingredients therein which is false or calculated to mislead." A year ago a central biochemical standardisation laboratory was established at Calcutta, this being in accordance with the recommendations of the Inquiry Committee. The laboratory is an essential part of the scheme which is now being planned.

THE MEDICAL USES OF RADIUM

THE activities during 1936 in the experimental laboratories and the clinical research centres coöperating in the special investigation of the effects of radiation are summarised in a green book issued by the Medical Research Council.[1] The subject of radiosensitiveness is receiving much attention; this is, of course, of the utmost importance to the clinician who has to consider suitable treatments for tumours which may vary widely in their response. The work of Mr. F. G. Spear, D.Sc., and Dr. A. Glücksmann at the Strangeways Research Laboratory has shown that it is possible to discriminate between the effects of radiation, of chilling, and of fasting on mitotic division in tadpoles, and that radiation in the doses used is only effective in producing degeneration when mitosis is either active or approaching a state of activity. The occurrence of degenerate cells has also been studied quantitatively in this laboratory, and the results support the theory that the effect of gamma rays on cells about to divide makes them unfitted for the ordeal of mitosis. Mr. D. E. Lea, Ph.D., in collaboration with the Low Temperature Research Station, has investigated the action of gamma rays on bacteria and concludes that large doses of radiation have in addition to their lethal action the property of inhibiting division without hindering the increase of volume of the individual organism. He has also demonstrated an interesting difference in the reaction of certain organisms to beta radiation though their reaction to gamma radiation is very similar. Dr. J. C. Mottram of the Mount Vernon Hospital and the Radium Institute has attempted to relate radio-resistance to anaerobiosis. Basing his argument on observation of the effect of radiation on the deep lying cells of tar cancers in mice, he suggests that the better the blood-supply the more sensitive the cell. He believes that periods of rapid growth, which can be found by measuring the tumour, are associated with an increased blood-supply and that radiation during these periods is more effective. Certain cases of advanced but slowly evolving cancer in the human subject have been treated by radiation given only during the times of growth, 500 r being given each time radiation is applied, and it is said that a number of tumours have been made to disappear locally. The influence of abundant mitotic division has also been studied and it seems that there must be some difficulty in distinguishing between the two effects with tumours treated in vivo. The statement that tumours composed of small cell masses should be more sensitive than those with large cell masses is open to question, since certain

[1] Medical Uses of Radium. Summary of Reports from Research Centres for 1936. Medical Research Council, Special Report Series No. 226. London: H.M. Stationery Office. 1937. Pp. 41. 1s.

large encephaloid tumours of the breast, for instance, are very radiosensitive.

Further proof of the difference in sensitivity of the actively functioning and relatively quiescent tissues is given by the experiments of Dr. H. A. Colwell and Dr. G. P. Gladstone at the Barnato Joel Laboratories of the Middlesex Hospital. They irradiated pregnant rats at full term and killed the animals 24 hours later. Histological examination of the alimentary canal of mother and fœtus showed pronounced changes in the adult tissues, but practically no deviation from the normal in the section of the irradiated fœtus. Further interesting reports come from Prof. Sidney Russ and Miss G. M. Scott at the same laboratory, from Dr. M. A. C. Cowell of the Holt Radium Institute, and from Dr. Joan Ross of the Royal Free Hospital. At the physics department of the Imperial College of Science and Technology experiments on artificial radio-activity, the biological action of neutrons, and the effects of low temperature on absorption of neutrons suggest interesting possibilities, and much careful work by Mr. W. V. Mayneord, M.Sc., at the Royal Cancer Hospital finally concludes that the c.mg.h. unit is equal to 8·3 röntgens. The section on therapy follows the usual lines and no special innovations call for comment. The number of cases of cancer of the breast treated by radium implantation shows a slight decrease, suggesting that it has not replaced surgery for the early case, while some centres now prefer X ray therapy for the advanced case. The results in cancer of the cervix show a slight but steady improvement, and the very low mortality-rate in the year 1936 is particularly hopeful; it looks as if the immediate dangers of treatment are being overcome. Birmingham draws attention to the danger of necrosis in the treatment of cancer in the mouth, and to the difficulty of distinguishing necrosis from recurrence. For the cases quoted the dose stated is 8000 r in 164 and in 198 hours; this dose is higher than that delivered in most centres. Finally there is a short report on the one-gramme teleradium units. The two- and four-gramme units which are being installed at University College Hospital and at the Middlesex Hospital are not yet available for treatment.

A BRITISH FESTSCHRIFT

MANY contributions to science lie buried in the pages of Festschrifts. Of all references which the research worker needs these are the most difficult to trace. Nor is it always a pleasure to read a heterogeneous collection of technical papers, whatever their individual merits. But there is now to hand a Festschrift with a difference. It is a collection of thirty-one essays [1] contributed by a few of the pupils and colleagues of Sir Gowland Hopkins, F.R.S., to celebrate his seventy-fifth birthday. Each essay is written around some subject of which the author has special knowledge. None describes original researches and few are in the nature of formal reviews; the intention has been rather to allow each contributor full rein to his imagination, to let him shed bit and bridle and range at will through the fields of biochemical speculation. Some, it is true, like well-trained liberty horses, continue to canter neatly in circles; most are still subject to a certain self-restraining discipline; but there are plenty of kicks and scampers, and not a few let themselves go like mustangs on the open prairie. The result is a stimulating collection; with plenty of solid matter in it, to be sure, but always interesting and often provocative, the sort of book one cannot read without getting ideas.

As a tribute to Hopkins the work is remarkable. The essays cover an immense variety of subjects: the nature of the gene, the architecture of the cell and its proteins, comparative biochemistry, the chemical administration of growth, cellular oxidations, muscular contraction, vitamins, toxamins, the social implications of biochemistry—to pick a few at random. This variety is in itself a tribute, for it shows how diverse are the interests of those who have drawn their inspiration from this source. Moreover, it is evident that these past and present members of his laboratory see biochemistry as Hopkins himself has always seen it, as the ultimate description of all vital processes—not merely as the organic chemistry of matter which was once alive. The book itself is beautifully produced; the title page alone is a work of art; it has a charming informal frontispiece of Sir Gowland with pipette and slide rule; and it is prettily bound in a buckram of Cambridge blue.

[1] Perspectives in Biochemistry. Thirty-one essays presented to Sir Frederick Gowland Hopkins by past and present members of his Laboratory. Cambridge: University Press. 1937. Pp. 361 15s.

SULPHANILAMIDE FOR MALARIA?

THE latest disease to be treated with sulphonamide compounds is malaria. The report comes from the Pan-American Sanitary Bureau and is published by the United States Health Service "with the hope that a cautious use of the drug by others may determine whether or not it has real value in the treatment of malaria." [1] The trial was made by Dr. A. D. de Léon in Mexico, and the preparation he used was Rubiazol Roussel (which corresponds to Prontosil) given by mouth and also injection. The patients had benign tertian fever, and after treating 15 cases "with complete success" Dr. de Léon felt sure that the remedy was effective.

THE next session of the General Medical Council will open at 2 P.M. on Tuesday, Nov. 23rd, under the presidency of Sir Norman Walker.

Mr. A. CHESTER BEATTY, who has recently been elected vice-president of the Royal Cancer Hospital, Fulham-road, has purchased the old Freemasons' Hospital nearby with the intention of equipping it for conversion into a cancer research institute. This will give space to develop the research institute which has been for many years under the direction of Prof. E. L. Kennaway. Mr. Beatty is also re-equipping the radiotherapeutic department of the hospital and providing an university travelling scholarship which will enable a student, after obtaining the academic diplomas in medical radiology, to spend a year abroad.

Mr. JOHN AUGUSTUS VOELCKER, who has just died at the age of 84, had been consulting chemist to the Royal Agricultural Society of England for the last 52 years. Following the lead of his father, Augustus Voelcker, F.R.S., he early studied chemistry in relation to agriculture at London University and later at Giessen, where he took his Ph.D. For the whole of his active life he was director of the Experimental Farm and Pot-culture Station at Woburn, Beds, and at one time or another he was public analyst for several English counties. He was president of the Society of Public Analysts, of the Farmers' Club, and of the London Athletic Club. His younger brother, Dr. A. F. Voelcker, survives him.

[1] *Publ. Hlth Rep., Wash.* Oct. 15th, 1937, p. 1460.

POST-GRADUATE LECTURES

RESUMING our series of lectures delivered at post-graduate courses held in the London teaching schools at the beginning of the winter session, we publish this week abstracts of those given by Mr. Moore and Dr. Burrows at the London Hospital.

MOTORING ACCIDENTS

(MR. A. M. A. MOORE)

DURING the last few years the medical profession has taken a steadily increasing interest in the injuries associated with motoring. I have been collecting information about the frequency of the different types of injuries and their relation to the construction of the modern motor-car, and I thought it would be interesting to compare the fractures of this kind dealt with at two very different hospitals in the East End of London. These are the King George Hospital, Ilford, which is on the Southend arterial road, and the Poplar Hospital for Accidents which is situated in the centre of a big industrial area.

Although very many fracture cases are dealt with at the Poplar Hospital, only a small proportion of these could rightly be called motoring injuries. This is not surprising when one considers that the speed of traffic in the vicinity of Poplar can never exceed 30 miles per hour. At the King George Hospital, on the other hand, the incidence of motoring fractures in the very large number dealt with is considerably higher, many of the cases being brought to the hospital from the large unrestricted roads in the vicinity.

The many changes in the construction of the motor-car during the last twenty years have been reflected in a change of the type of injury seen to-day. The presence of self-starters in the majority of cars has very largely diminished the incidence of fractures in the region of the wrist-joint. In addition, the introduction of bumpers, the shape of door-handles, and the use of so-called safety glass for windscreens have all been linked with the change in the injuries seen. Further, the increasing popularity of the motor-cycle has undoubtedly done much to add to the number of fractures and injuries of all types.

The so-called bumper fracture presents one of the most interesting of surgical problems. In the early days when bumpers were placed rather higher on the front of a car it was quite common to see injured pedestrians who were suffering from fractures of the upper part of the tibia into the knee-joint. In recent years, however, bumpers have been placed in a lower position with the result that badly comminuted and compound fractures of the middle of the shaft of the tibia and fibula are now often seen. This common type of bumper fracture reveals a curious X ray picture. There are longitudinal fracture lines running up and down the shafts of the affected bone, and in addition a triangular piece of bone is frequently found lying loose on the front of the middle of the shaft of the tibia.

It is important to remember that this fracture is sometimes followed by non-union. The medical practitioner must realise the importance of treating a case of this type as a surgical emergency. The patient should be dealt with if possible in some suitable cottage hospital or other institution, and the wound carefully excised and cleaned before it is sutured with interrupted stitches. The fracture should then be treated by suitable extension or immobilisation in plaster. In addition a prophylactic dose of tetanus antitoxin must never be forgotten. I would like to impress on you that where skeletal traction is used as a method for reducing the deformity in such a fracture it is important not to over-extend the fracture. I believe that prolonged over-extension of such a fracture is a most important cause of eventual non-union. The value of the walking plaster cast cannot be over-emphasised.

Another type of injury which has been especially recorded in America is the door-handle injury. We must all be familiar with the sharply pointed door-handle to be seen on most modern cars. Many of these have the sharp end directed forwards, and it is quite obvious that if a rapidly moving car strikes a pedestrian with this handle a very serious injury might result. Penetrating wounds of the skull, chest, and other parts of the body have been recorded.

I would suggest that by bending the door-handle so as to prevent the sharp end pointing forwards, or by sinking the handle into a depression on the side of the door, leaving it flush with the surface, the possibility of such injuries would be greatly diminished.

Attention has already been drawn to the fact that fractures resulting from the cranking of a stationary car have definitely lessened of late years. In some of those big institutions which control many hundreds of buses it is found necessary to start these vehicles every morning by hand. Often this is done by one trained man, for it was found that where each individual driver started his own bus the percentage of serious wrist injuries was definitely higher. In addition, the development of inguinal hernias was by no means unusual when inexperienced men were straining themselves starting these buses.

Injuries of all types, such as the Colles fracture, and the reverse Colles fracture, known as the "chauffeur's fracture," still occasionally occur. Fractures of other bones—e.g., the metacarpal and scaphoid bones—are also sometimes seen.

There can be no question that in all these fractures accurate reduction of the deformity is most important. The fracture can be infiltrated with 1 per cent. novocain and subsequently reduced. The limb is then fixed in plaster-of-Paris for a few weeks, after which it can be removed, and, if necessary, physical treatment instituted.

In connexion with the dirty wounds so frequently resulting from motoring injuries, I may remind you that tattooing of the skin is occasionally seen after the wound has healed. Particles of carbon or oil from the car or road may get into the wound and be responsible for this tattooing. Consequently the importance of carefully excising and cleaning the wound before suturing must be borne in mind.

The driver of a car or the passenger at his side may sometimes sustain certain curious injuries. Fractures of the patella resulting from direct violence when the passenger is thrown against the lower part of the dashboard are of special interest. These fractures are usually comminuted and are best treated by an excision of the patella. This method of treatment, which has recently become popular for such fractures, gives a very good functioning knee, and there will usually be less chance of eventual osteo-arthritis if this operation has been performed.

The driver of a car may sometimes be thrown against the steering wheel and receive severe chest

injuries. One wishes it were possible to provide some telescopic arrangement in the steering column which would prevent or minimise the effects of such a blow.

In the old days, facial and head cuts from broken windscreens were fairly common. With the introduction of the strong safety glass quite a number of severe head injuries, fractures of the skull, and fractures of the facial bones have been recorded.

The passenger seated in the back of the car is also liable to curious injuries. The combination of a well-sprung back seat and a fast moving car traversing a bumpy road has before now resulted in a passenger sustaining a serious injury by striking his head against the roof of the car. Another injury commonly suffered by the passenger in the back seat is an injury to the elbow due to a blow on the side door or the seat in front.

Before concluding there is one other type of accident that requires mention because it is seen quite often. A workman seated on the top of a delivery van or lorry may, when a collision occurs, be thrown from his seat and fall some distance heavily on to his heel. A fracture of the os calcis is not unusual under these circumstances. Every practitioner will be familiar with the painful heels so commonly developing even after such fractures have been immobilised in plaster for some time. It is our belief now that if the deformity is accurately reduced by the use of a modern screw-traction apparatus, followed by a walking plaster cast for some months, good function results. A fracture of this bone is always upwards into the subastragaloid joint, and there is little doubt that where pain persists the pain is in this joint. Hence a subastragaloid arthrodesis may very well bring about complete cure of the patient's pain.

The following list of references may be useful to those who wish to pursue the subject of motoring accidents further :—

Campbell, O. J. (1936) Bumper Fractures of Tibia, *Minnesota Med.* **27**, 267.

Carter, W. W. (1935) Tattooing of Nose and Face following Automobile Injuries, *N.Y. St. J. Med.* **35**, 573.

McLanahan, S. (1935) Hazard of Automobile Door Handle: Report of Six Serious Injuries, *J. Amer. med. Ass.* **105**, 1023.

Ogilvie, H. H. (1935) Automobile Door Handle Injuries, *Tex. St. J. Med.* **31**, 9.

Stern, W. G., and Papurt, L. E. (1935) Healing of Newer Bumper Fractures of Tibia, *J. Amer. med. Ass.* **105**, 2147.

COSMETICS *

(DR. ARTHUR BURROWS)

COSMETICS in the modern sense are substances used for personal adornment. By a common psychological and grammatical shift cosmetics has also become the art of intimate personal adornment. Narrowing the idea down still more, the art applies to the application of various preparations to the skin and its appendages with the object of improving or changing their appearance. Here however steps in the specialised practitioner of the art who will not only apply or add things to the skin but will take away blemishes or hide them. At this stage the dermatologist becomes restive and critical.

The number of cosmetic preparations on the market is now enormous. The old uniformity of composition is tending to pass away owing to the use of a large variety of different natural materials and the products of the chemical laboratory. Generally speaking the cosmetists say that all women should use four main preparations: (1) a cleansing cream or a cold cream; (2) a skin food; (3) a vanishing or foundation cream or lotion; and (4) a powder.

The type formula for a *cleansing cream* given by Dr. Goodman in his "Cosmetic Dermatology" is:

1. A cleansing agent (sulphonated oil, castor oil, olive oil, coco-nut oil) 6–12 per cent.
2. Liquid paraffin (lowest viscosity 60–80) up to 18 per cent.
3. Solid base (beeswax, spermaceti, paraffin wax) up to 20 per cent.
4. Water up to 10 per cent.
5. An emulsifying agent (lanolin or oxycholesterin base) up to 10 per cent.

The object is to provide a cream which will melt at about body temperature and be easily rubbed in. When rubbed in it picks up dirt and epithelial scales, and it looks dirty when (as is essential) it is removed afterwards with absorbent paper.

Cold creams, which have grown out of Galen's original formula, are said to be more greasy than the usual cleansing preparations. The medieval crude method of emulsification has been replaced however by the use of such emulsifiers as borax, and these cold creams may be used as cleansing creams.

Most women think that such creams, even when they do not contain a detergent, do clean; and whatever else may be said on the question, many do keep their faces clean with them for months. If, as is usually recommended, they are rubbed off after application it is difficult to see where they do any harm.

Two things which permeate the literature of cosmetics may be mentioned. They are: (*a*) the pores, and (*b*) moist and dry skins. "The pores" appear to mean the sebaceous hair follicles. They can hardly mean the openings of sweat glands because sweat-gland orifices are never seen and "enlarged pores" is a cosmetic malady. It does not seem likely that greases, if carefully removed, block up pores, and that they can offer opposition to the expression of sebum. It is most likely that the subject of "pores" is a bogy, perhaps derived from a distant memory of early popular lectures describing the stomata in leaves with their important functions.

Moist and dry skins in cosmetology embrace all skins: a healthy normal skin, neither moist nor dry to the cosmetist, hardly exists. Cleansing creams may be used with either type of skin, according to taste and experience, or cleansing lotions may be substituted. For dry skins lotions containing glycerin, oils, and a detergent are recommended, and for greasy skins alcohol, acetone, resorcin, benzoin, and weak alkalis such as borax; but I know of no reason why a good soap should not be used for a greasy skin, and it is quite certain a normal skin does not mind it either. The soap must, however, be good, for it is generally said that any soap with over 0·25 per cent. free alkali may produce dermatitis in the susceptible.

Skin foods, tissue creams, lubricating creams, and the hundred other trade names that have been given to them are said to nourish the skin and, the recipient will also say, "make it feel nice." They usually contain lanolin, which as you know is a natural sheep's wool fat, close to sebum in composition; the addition of lecithin, olive oil (or cod-liver oil) in suitable proportions will bring it even nearer. Other waxes, fats, perfumes, &c., may be added to "skin foods" to taste.

Now none will deny that fat can be absorbed through the skin, and that women who have had it

* This lecture will appear in full in the *London Hospital Gazette*.

skilfully applied feel better for it, but it is doubtful how far supplying fat through the epidermis can be called nourishing the skin even though chemicals may be absorbed that way. No doubt exists that the skin is nourished from within by its own blood and lymph supply, and so long as it is not diseased and the blood and lymph supplies are adequate in quality and quantity, no outside help is needed or possible. The "skin food" is purely a cosmetic and as such must stand on its own legs.

Skin tonics from their very name suggest a bygone conception, but like other tonics may have a real psychological effect if no other.

Vanishing creams are also commonly called foundation creams. Goodman gives the following type formula :—

1. Stearic acid, 16–24 parts.
2. Solid elements (lard, cocoa-butter, tragacanth), 6 parts.
3. Liquid elements, both fatty (liquid paraffin, glycerin) and non-fatty (water, alcohol), 75 parts.
4. Emulsifiers (borax, pot. hydroxide, sod. carb., 1; ammonia water, 1; triethanolamine, 1; cetyl alcohol, 10; glycols, 10; stearate of triethanolamine, 10), 33 parts.

These creams should contain a higher percentage of water than cold creams or "skin foods," and apparently may be either oil-in-water or water-in-oil emulsions—a fact that may account for the differences in taste and choice of users. They must disappear when rubbed in and provide a foundation (slightly adhesive) for the application of powder. Lotions designed for the same purpose may be obtained. Some provided for greasy skins resemble very closely our calamine lotion with its zinc oxide, calamine, and glycerin, but are more elegantly prepared.

On the base thus got ready is applied *powder*. The powder may be of very many compositions but in general it contains kaolin, said to be a good absorbent for perspiration, magnesium or other stearate to give it adhesive properties, powdered talc to give "slip" so that the powder moves easily over the skin, calcium and magnesium carbonate the deodorisers, scenting and colouring agents, and varying proportions of zinc oxide and titanium dioxide to give a varying "coverage" light, medium, or heavy to the powder. Starch should also be mentioned perhaps as a frequent constituent. Rice powder is probably the best form, but many women find it too light.

Provided a powder does not contain material noxious to all or to sensitive people, it can be said to cool the skin, protect it from light, and inhibit or absorb objectionable odours and perspiration; and in dermatology, when of suitable composition, it may be said to alleviate itching, diminish inflammation, and cover weeping surfaces and so forth. Except in hard cakes probably nothing "clogs pores," and all the minor skin maladies can occur just as frequently without it. Nevertheless it has not yet been certainly proved that the perpetual use of cosmetics does not produce any effect on the skin, and I am inclined to think that if used in excess they create a vicious circle by which their use becomes in the end almost obligatory, unless defeat at the hands of Father Time is abjectly acknowledged.

In any case the same rule applies as for other cosmetics—namely, clean off daily.

It seems therefore that the ordinary cosmetics do not, as a rule, prevent the epithelium from carrying out its proper functions. Cosmetically prodigal people provide but a minute proportion of our patients. Cosmetics do not seem to harm heat-regulation or interfere grossly with the chemical or respiratory functions of the skin. The objections raised against them, if analysed closely, are usually objections to their cosmetic effect—an individual or æsthetic matter. For example, if it is stated that creams or powders or lotions cause blackhead formation or overgrowth of hair (which they do not) the objection is not medical; the objector knows the condition he objects to will not physically injure the user but only offend his (the objector's) conception of personal beauty. In discussing the action of cosmetics on the skin, another important fact is also apt to be forgotten—namely, that the area of skin treated is so small that it is doubtful, physiologically at least, whether it can have any appreciable effect on the health of the user, unless an abnormal factor is present. Such abnormal factors however may well bring cosmetics within the range of medical practice, and many *harmful substances* have been, or are, applied to the skin.

Chemicals can be absorbed through the skin when ointments or other greasy preparations of them are rubbed in. Watery solutions need some injury to the epithelium such as trauma or disease to permit absorption to take place. The following is a list of some of the substances that are said to have produced general poisoning from local applications :—

Grease paint (lead poisoning).
An enamel cream (lead poisoning).
Lead acetate and lead carbonate in powders (now seldom or never employed).
Barium sulphate and barium carbonate in powders.
Bismuth compounds—bismuth subcarbonate in liquid powders.
Zinc stearate has been accused of causing illness or death in a child.
Perchloride of mercury in freckle salves and lotions.
Arsenic, silver, and quinine in hair-washes and dyes.
The now probably discarded pot. cyanide and oxalic acid for bleaching.

Next follows a list of substances to which the users of cosmetics may be sensitive, idiosyncratic, or allergic, whichever word is preferred. These substances are often responsible for baffling skin complaints which give great trouble and distress.

Coco-nut oil.
Boric acid—borax to a less degree.
Aniline dyes. Eosin probably causes the not very common cheilitis which follows the use of some lipsticks.
Essential oils in perfumes.
Casein.
Cuticle removers (for nails) containing strong alkalis.
Orris root in powders may cause asthma or hay-fever.
Oil of bergamot may (on exposure to light) colour a skin brown. Eau-de-Cologne may also occasionally cause brown pigmentation in the sun.
Paraphenylenediamine and pyrogallol in hair dyes cause dermatitis in 1 per cent. of people exposed to them. (Henna is probably harmless.)
Indian corn starch.
Formalin for excessive sweating.

A third list includes substances (often contained in cosmetics) that may cause local irritation :—

Pot. carb. and sod. carb. in hair-washes.
Some fats when rubbed in.
Undiluted alcohol.
Undiluted glycerin.
Some say starch granules when they swell up.
Zinc oxide.
Mineral powders when too coarse—very rarely a defect of modern cosmetics.
Perchloride of mercury.
Iodine—may be in a freckle-remover.
Sulphides of bismuth, strontium, calcium, and sodium used as depilatories.
Silver in older hair-washes.

These lists are of course not exhaustive, but show that cosmetics may often raise problems which are purely medical in nature and quite outside the scope of lay practitioners. They add another risk to life.

The treatment of blemishes and skin diseases is likewise true medicine. Otherwise medicine deals only with the accidents of cosmetics by means of preventive advice or treatment after proper investigation.

SPECIAL ARTICLES

POSITION OF THE PRACTITIONER IN A REGIONAL HOSPITAL SYSTEM

THE conference of the British Hospitals Association held last June at Torquay decided,[1] after hearing Lord Sankey, Prof. Sheen, and Sir Reginald Poole, to set up a committee to implement the first three recommendations of the Voluntary Hospitals Commission [2]:

(1) The division of the country into hospital regions.
(2) The formation in each region of a Voluntary Hospitals Regional Council to correlate hospital work and needs in the region.
(3) The formation of a Voluntary Hospitals Central Council to coördinate the work of the regional councils.

The Association has now established a Provisional Central Council, which is faced with the extremely difficult task of giving practical effect to the general recommendations of the Commission. The latter, no doubt, gave a good deal of thought to the character and delimitations of regions suitable for the purpose, but its report was silent on the subject, beyond saying that "they should be built up in accordance with the position, rank and size of hospitals and should have regard, as far as possible, to the areas of local authorities with which they will coöperate."

The British Hospitals Association is already a regional organisation. It operates peripherally in 23 areas whose importance, from the hospital point of view, varies. These areas have been constituted from other considerations than now exercise the minds of those who are concerned with a broad hospital policy. For instance, the contrast between the magnitude of the bed provision and the administrative problems of Region C (Lancashire, Cheshire, Cumberland, Westmoreland, and the five northern counties of Wales) and Region R (Wiltshire) is striking. Not that it is practicable or even desirable that hospital regions should be related primarily to population or the number of beds, but if Region C, with a population of nearly seven millions and an acreage of nearly five millions, is a workable unit for hospital provision and coördination, it seems unlikely that the same can be said of Wiltshire with about 303,000 persons and 861,000 acres. Indeed, Region A (Scotland) seems to have been adopted mainly as a concession to nationalism, since it takes no cognisance of the vigorous Scottish move toward five distinct hospital areas, four of them based on the great teaching centres in Edinburgh, Glasgow, Dundee, and Aberdeen.

It is clear, therefore, that the Provisional Central Council, while having behind it the valuable experience in distal organisation of the Association, will have to approach its primary problem without too great a regard for any prejudices engendered by internal tradition. The Commission realised that a far closer link with statutory hospitals is required than legislation prescribes, and, indeed, the plea for more financial aid from central and local governing bodies seems to imply a working association between the two types of hospital. Can this be attained while council hospitals continue to serve only areas delimited by the boundaries of counties and county boroughs, and even occasionally of urban districts? Will a county council or a county borough council contribute to the funds of a regional organisation which operates beyond its area? The separatism which actuates these authorities and which the Act of 1929 has done little to remove is far from encouraging. In a sense it is even more urgent that local authorities should become regionally minded than voluntary hospital managers; for the former are pressing forward more rapidly with new hospital provision, or extension of existing accommodation, often without regard to the activities or intentions of their neighbours. The view held in voluntary hospital circles, that the first thing for them is to put their own house in order, is understandable, but if their design is chiefly to strengthen their bargaining position vis-à-vis the increasingly powerful authorities, the outcome may not be the best thing for the public which both types of body serve. As an expeditious mode of procedure, there is much to be said for an independent group of hospital experts endeavouring to arrive at the nearest practicable approach to a regional system, but the idea that the selected areas would be administratively appropriate for *all* types of hospital provision should be brought to the notice of the Ministry of Health and the local authorities at the earliest possible stage of the proceedings, preferably before the regions are fixed. The grading of institutions round a central hospital according to the Dawson plan of 1920, which the Commission favoured, and a rational system of individual payments for treatment in any sort of hospital through regional contributory schemes, cannot be completely attained without the consent and coöperation of the local authorities. Although there is no legal obstacle to their acquiescence, they are autonomous and their goodwill cannot be expected unless they are give an opportunity to be parties to the plan.

The Provisional Central Council will no doubt defer consideration of the rest of the Commission's 37 Articles till it has settled the regional question. Some of them, however, are urgent and intimately concern practitioners of medicine. Such, for instance, is the problem of out-patient departments. The King Edward's Hospital Fund for London and the British Medical Association have expressed views on the subject, each from its own standpoint. The Commission rightly pointed out the difficulty of excluding uninsured dependants from such departments at the present time, but the question is really only part of a much bigger issue. The growth of both voluntary and statutory institutionalism in medicine is limiting the field of work of the general practitioner and depriving private practice of some of its interest, attractiveness, and efficiency. The public, on the other hand, will not consent to a reversion to consulting-room medicine if it believes that hospitals can give it better service. The Voluntary Hospitals Commission was not concerned with the influence of hospitals on the practice of medicine, but the teaching hospitals, at least, which owe much of their status and prestige to their connexion with medical schools, have an obligation to those whom they launch into the profession. The difficulties—and they are many—of bringing the practitioner into regular association with hospital work ought to be squarely faced and overcome. The growth of hospitalisation and contract practice may become evils for the profession unless its members participate in the advantages in other directions which become possible under such an organised service as the Insurance Act, the Local Government Act, and now

[1] *Lancet*, 1937, **1**, 1352.
[2] *Ibid*, p. 1123.

the movement toward coördination of voluntary hospitals, are gradually establishing. The time seems to have arrived for a new survey of medicine by some body not merely concerned with voluntary hospitals, for it would be unwise to foster a working arrangement between voluntary and council hospitals to their mutual advantage without regard to the welfare of medicine as practised outside their doors.

MEDICINE AND THE LAW

The Signing of Medical Certificates

THE Court of Appeal has given a useful reminder that a medical certificate should not be signed in the name of a medical partnership. The occasion was a workmen's compensation case where both partners had made the medical examination; the signature was in the firm's name "Legge and Legge." Lord Justice Romer said he saw no objection to this signature inasmuch as both partners were certifying; if only one partner made the examination, it would be improper to use the firm's name. The Master of the Rolls said that, if the signature of the firm were used where only one partner had made the examination, it was not a valid certificate under the Act. Even in exceptional cases where both partners jointly examined, it was desirable, in order to avoid the possibility of doubt and litigation, that each doctor who had made the examination should sign individually.

"Two Quacks with Degrees"

An optician who advertised himself as "the eminent London eyesight specialist" and who claimed to have "specialised in difficult and complicated cases" was the plaintiff in a libel action (Burford *v.* Odhams Press Ltd.) which was tried by the Lord Chief Justice last week with a special jury. The plaintiff was Mr. Ephraim Burford, *né* Binderman, who used after his name the imposing letters F.Q.O.P. and F.I.B.O. In an article headed "Two Quacks with Degrees" *John Bull* discussed the activities of Mr. Burford and of another "self-styled ophthalmic specialist" Mr. Harry Browne. Mr. Burford was described as claiming to be the principal of a concern calling itself the Northern Optical Service, of Holloway Arcade, London, N.7, Mr. Browne as having formerly conducted a business called the National Optical Service at 3, The Market Place, Sleaford. *John Bull* said that Mr. Burford's degrees had been declared absolutely worthless by a stipendiary magistrate and that neither of the two men was qualified to treat people with bad sight. Mr. Burford sued the publishers of *John Bull* for damages for libel, complaining that the article suggested that he was an impostor and a quack and incompetent in his profession. Mr. Browne, more tolerant of these imputations, took no action. The defendants justified all that had been printed. They asked the jury to agree that Mr. Burford was a quack and a public danger. The jury did so. When a verdict had been given for the defendants, Lord Hewart remarked that he would be glad to think that this sort of enterprise was receiving the attention of those who have to administer the law relating to the obtaining of money by false pretences.

Mr. Burford claimed in his evidence that the ordinary optician nowadays was a sight-testing and not merely a dispensing optician. Testing eyes, he said, was a mere routine operation; lads of 16 years could do it after three weeks' instruction. If he found any abnormality in a customer's eyes, he always referred the customer to an ophthalmic surgeon. Apparently in support of this statement an ophthalmic surgeon from Harley-street was called on his behalf to testify that Mr. Burford had sent him patients suffering from ailments which he (Mr. Burford) had already diagnosed. This witness, however, damaged the plaintiff's cause by conceding that nobody without a medical degree should test eyes, by denying that a boy of 16 could learn to test them in three weeks, and by showing scepticism as to the value of the degrees F.Q.O.P. and F.I.B.O.; the examination papers on which these qualifications were awarded he regarded as totally inadequate. The defendants' counsel told the jury that Mr. Burford belonged to a bogus association with bogus examinations and bogus degrees, an association conducted solely to enable opticians who could not pass more serious examinations to put imposing letters after their names. Nothing much was said about the F.I.B.O. (Fellow of the Institute of British Optometrists); but the secretary to an East Ham optician gave evidence of the ease with which she gained the description of F.Q.O.P. (Fellow of the Qualified Optical Practitioners' Association). She knew nothing about optics. She was sent a paper which she filled up under instructions from her employer. When communicating with the association she put the letters W.M.S. after her name; these, she explained, stood for Women's Missionary Society. Her name appeared in a list of members who had passed an examination; she sent a subscription of half a guinea. Not less curious was the evidence about some of the unsolicited testimonials advertised by Messrs. Burford and Browne. One of Mr. Burford's was written by his father's housekeeper; one of Mr. Browne's was written by Mr. Burford himself. "Dear Mr. Browne," it began, "I feel I must write and tell you how pleased I am with my glasses." This seems a somewhat formal method of address when it is appreciated that Mr. Browne turned out to be Mr. Burford's younger brother.

Registration for Opticians

At the close of Burford *v.* Odhams Press Ltd., the Lord Chief Justice said it was to be hoped that the scheme for establishing a register of qualified opticians and for tightening up the law in this respect would be successful. In this connexion it is of interest to notice a recent case in which the British Optical Association and one of its members were concerned. The Association has made rules against advertisement. Its members are not to tell the world that they give free sight-testing or that they use a particular sight-testing apparatus; they are not to advertise "ready-to-wear" spectacles or the prices or discounts of spectacles; nor are they to display testimonials or to claim higher skill than their fellow-members. The Association complained that Mr. H. J. Draper, one of its members, had been advertising the price of spectacles by printed circular and in window displays, and that his circulars announced that he used for sight-testing an instrument called the British Refractor. Mr. Draper was invited to attend a meeting of the Association's council at which these complaints were to be investigated. He thereupon applied to Mr. Justice Crossman for an injunction to prevent the Association from enforcing its code of rules and from removing his name from the register. He contended that he had acted merely as employee of a company for the actions and policy of which he was in no way responsible; he denied that he had infringed the

articles of the Association; he said there was no reason for striking him off the register except the fact that he had advertised the price of spectacles; this in itself was not a sufficient reason. His counsel challenged the legal authority of the Association to say to one of its members "you must obey our code." The court refused the remedy of an injunction. The incident illustrates the uncertainties of a system of voluntary registration. If Parliament is to be asked to confer upon a representative body of opticians statutory authority for the keeping of a professional register and for the enforcement of ethical standards, there must first be a general agreement about the scope of their vocation. It would be optimistic to introduce a Bill based on Mr. Burford's assumptions that the modern optician is as fully competent to test sight as to dispense spectacles or that sight-testing is a piece of routine which a boy of 16 picks up in three weeks. Mr. Burford's own witness repudiated these views. The public must be protected. When cross-examined about his self-advertisement as an "eminent London eyesight specialist," Mr. Burford replied that examinations did not matter—the important thing was experience. "Have you ever asked yourself," inquired the Lord Chief Justice, "at whose expense you have learned?"

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENT)

POLIOMYELITIS AND THE PUBLIC

POLIOMYELITIS in this country caused an unusual amount of discussion in the newspapers as well as the professional journals this year. Although the disease has shown the usual seasonal decline, interest in the problem remains at a relatively high pitch. According to Public Health Reports, the number of cases reported this year up to the week ending Sept. 18th was 6391, as compared with 2261 up to the end of the week ending Sept. 19th, 1936. Although this indicates a considerable increase, it is questionable whether it reached truly epidemic proportions this year except possibly in a few communities. The most debated question was whether schools should be closed in communities in which the incidence was relatively high and the decision in this respect varied considerably in different parts of the country. In 1932 the health officers of several of the larger cities agreed that the schools should remain open in the presence of poliomyelitis, but this year those in Chicago as well as in some other cities delayed opening until the peak had passed. It is still too early to attempt to analyse the results or to determine whether there may have been any decrease in incidence as a result of such closures. The second point of importance was whether nasal sprays containing zinc sulphate which had been found effective in preventing poliomyelitis in monkeys should be introduced on a large scale in communities with high poliomyelitis rates. Unfortunately this question came up too late in most communities to receive adequate attention and the results obtained this year will hardly be significant. Furthermore it has been pointed out that the sprays are irritating and the side actions or possible complications of this attempted preventive are not yet fully known.

BILE SALTS FOR ARTHRITIS

It was noted several years ago by several independent observers that the appearance of jaundice in patients with arthritis was attended by a dramatic decrease in pain and remission of symptoms. At the last meeting of the American Rheumatism Association in Atlantic City tentative reports were made of the attempted treatment of arthritis by various preparations of bile salts. Thus Thompson and Wyatt treated 10 cases of chronic atrophic arthritis with daily intravenous injections of a bilirubin bile-salt mixture for 8–12 days. They reported success in the production of the hyperbilirubinæmia and some remission in symptoms of the arthritis for variable periods. Hench repeated these experiments, using bile salts, bile feedings by stomach-tube, transfusions of jaundice blood, and experimental jaundice from toluylenediamine, but was not able to obtain consistent results. If the method of Thompson and Wyatt can be repeated successfully it will permit clinical investigators to study the phenomenon more closely but at present the method has little to recommend it as a therapeutic procedure.

ANTAGONISM TO SOCIALISED MEDICINE

The Medical Society of New Jersey while pledging itself to coöperate with existing departments of health has stated its view that federal control in the practice of medicine should be confined to the army, navy, and marine corps, war veterans with disabilities directly due to active duty, and public health service in a strict sense; and local government control to the maintenance of institutions for the insane, epileptic, and those having communicable diseases needing isolation. Other phases of the practice of medicine they feel should be free from governmental supervision or control. The principle of caring for the indigent by the use of public funds for the payment of physicians on a reduced fee basis should be supported. Those gainfully employed, but in a so-called low wage group, should not receive government aid but be cared for by private physicians through a mutual adjustment of fees on the deferred payment basis. Finally the society affirmed its conviction that compulsory health insurance or any other form of State medicine is not suited to the American people and would harm both him who gives and him who takes.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

SUICIDE

THE third of the series of Honyman Gillespie lectures was delivered in Edinburgh last week by Prof. D. K. Henderson. His subject was suicide which, he said, is a major problem to-day, numbering among its victims people of every class and every nation. The number of suicides in any country gives an index of the mental and emotional stability of its population. Statistics show that there had been a large increase in the number of suicides during the last century.

Prof. Henderson claimed that a suicide is not a coward nor a hero, but one who exhibits feeling to the highest degree. To the Mohammedans and the Jews suicide is unthinkable, but to the Greek philosophers it was quite reasonable, since they maintained that the struggle of life was so doomed to defeat that a man was justified in ending it by his own hand. In the past the church and the law have been important factors in controlling suicide—the former by instilling dread of the hereafter for

those who succeed in taking their life, and the latter by its treatment of those who attempt to do so. In Scotland the attempted suicide is not tried unless the act has been committed in public, but he is examined by a psychiatrist and is either admitted to a mental institution as a voluntary patient or is certified. He is then treated as a sick person and may return home later to become a useful member of society.

Suicide is commoner in cities and in large boroughs than in country districts; it is becoming rarer in Sweden, Denmark, France, and Spain but more widespread in other European countries. It is commoner in the sunny cities of the Pacific coast than in our own and in spring and early summer than in autumn and winter. There are more attempted suicides among females, but three or four males are successful to one female.

Of all attempted suicides examined during five years not one could be said to be of sound mind; those apparently sane were found on investigation to have shown evidence of mental conflict for some time previously. No type of mental illness contra-indicates suicide and the threats of psychoneurotics should not be neglected. Depression is a dominating factor in the ætiology of suicide and a depressive of any type is always a potential suicide—a tendency which increases if the patient is "policed." Convalescence is particularly dangerous; initiative returns, and the patient is faced with the readjustment necessary for a return to ordinary life with resultant mental conflict. The problem must be tackled, according to Dr. Henderson, by community organisation and individual prophylaxis, by improved environment and education. Religion plays a part which has not been sufficiently emphasised in preventing suicide by providing social relationship, help, and encouragement when that is often all that is necessary. An additional important measure would be censorship of the press and suppression of the lurid details of cases of suicide.

DR. POLLOCK'S BENEFACTIONS

A son of the manse, John Donald Pollock graduated M.B., Ch.B. at Edinburgh University in 1892, and M.D. in 1895. After holding some hospital appointments he put up his plate in the west end of London and soon had a good practice, which he left to travel over the world with the late Duke of Leinster. After the Duke's death in 1921 he started a ship-breaking company in Fife, which later as Metal Industries (Ltd.) raised many of the German ships at Scapa. He then started a company to manufacture oxygen at Rotherham, and later became president of the British Oxygen Company.

This romantic story reaches its climax now, for he has given a sum of £250,000 to form a trust, the income of which will be used largely to benefit the students of Edinburgh University. He intends to do more, however, and is planning an extensive scheme for the welfare of students which will involve large capital expenditure, all of which he hopes to find himself. The provision of further halls of residence for students will form a large part of the plan. This scheme will be warmly welcomed, for at present a high proportion of the students live in lodgings, a state of affairs which is not entirely satisfactory. Dr. Pollock's benefactions are the most important in Scotland in recent times: they will be particularly appreciated because they will materially improve the welfare of the students at Edinburgh University.

IRELAND

(FROM OUR OWN CORRESPONDENT)

MEDICINE AND LITERATURE

In his oration to medical students at the opening of the Royal Victoria Hospital, Belfast, Dr. F. F. Montgomery, assistant physician to the radiological department, urged his hearers to cultivate literature not only for the joy it brought but as a way of escape into "that pleasant land of thought" where there are no querulous complainings of sick men, no tearful faces of anxious relatives, no thankless words from ungrateful patients; and he reviewed the close association between medicine and literature through the ages. Hippocrates, he said, resembled the great classical writers of his period; he was clear, simple, and precise; and whether the oath, the law, and the discourse on the sacred disease were written by him or not, they were at all events infused with the spirit of the father of medicine. After the migration of Greek medicine to Rome it was Horace who had much to say of the doctors of his day, and it was remarkable that nowhere in his extant writings was there a word of unkindness or ridicule of the profession of medicine. After the passing of the Roman Empire the state of Europe became one of priest-ridden terror, of abandonment of intelligence to gross superstition, and, of abysmal ignorance penetrated by the faint but steady light of Salerno which finally expired in the fog of the early middle ages. Later Dr. Montgomery described the quaint imagery and ornate circumlocution of Elizabethan medical prose, remarking that it was Sir Thomas Browne who first ventured to write in English, but the profession was slow to accept the vulgarisation of medicine. In a more recent epoch the orator had equally happy things to say about Oliver Goldsmith and Oliver Wendell Holmes. He expressed amazement at Dickens's knowledge of the professional medical life of his day, his characters revealing deformity and twisted nature both in body and mind. The literary tradition in English medicine may be said, Dr. Montgomery concluded, to have culminated in the two regius professors at Oxford and Cambridge, Osler and Allbutt, whom Osler facetiously dubbed the brothers regii. Their literary efforts were largely devoted to the history of medicine: in this field Allbutt was the profounder scholar of the two and his Greek Medicine in Rome, written when he was over eighty, is a masterpiece of erudition and clear thinking. Definitely harmful, Dr. Montgomery remarked in taking leave of the students, is an exclusive devotion to the work and literature of our profession.

MEDICAL REGISTRATION

The present Irish Free State Medical Registration Council held its first meeting on Nov. 2nd. The several bodies entitled to nominate representatives had nominated the same representatives as heretofore, with the exception of University College, Cork, which had not yet chosen its representative. The previous direct representatives were again elected. Dr. Denis Coffey was re-elected president.

Mr. Richard Atkinson Stoney has been appointed to represent the Royal College of Surgeons in Ireland on the General Council of Medical Education and Registration, in room of the late Sir Thomas Myles. Mr. Stoney is a past president of the College, and is senior surgeon to the Royal City of Dublin Hospital.

PARIS

(FROM OUR OWN CORRESPONDENT)

B C G BY PARENTERAL INJECTION

THE communication made to the French Academy of Medicine on Oct. 5th by Dr. B. Weill-Hallé and Dr. L. Sayé on the appearance of an allergic response to B C G given by subcutaneous or intracutaneous injection gained in significance from the fact that Dr. Weill-Hallé was the first to give B C G to human beings under Calmette's supervision. The same observers now report on their attempt to ascertain, by carrying out Pirquet and Mantoux tuberculin tests after the injection of B C G, the length of the interval between such an injection and an allergic response thereto. These investigations were also intended to provide material for comparing the two tests, Pirquet and Mantoux. It may be noted in passing that the frequent failure of the oral administration of B C G to give rise to any allergic response has induced French workers to favour its parenteral administration. Weill-Hallé and Sayé studied the tuberculin reactions of 33 children given subcutaneous injections of B C G, and 17 children given intradermic injections of it. They found that the subcutaneous injections provoked abscesses with sinuses in six cases, the sinuses remaining open for two to three weeks. In about 40 per cent. of the cases, Mantoux's test with 0·1 mg. of tuberculin gave a positive reaction sooner than the Pirquet test, and this gain in time by the Mantoux test was most evident when the dosage of B C G had been highest. When only a small quantity of B C G was injected it usually took seven to eight weeks for an allergic response to be demonstrable. This interval could be reduced to three or four weeks or less by raising the dosage of B C G at the risk of benign abscess formation.

PIRQUET TESTING IN THE FRENCH ARMY

The value of the Pirquet test in a search for unknown sources of infection has been proven with precision by two Army doctors, Dr. Debénédetti and Dr. Balgairies who have carried out the test on 936 recruits. Two successive tests, made at an interval of eight days, showed 187 to be negative reactors. When 122 of them were again tested with tuberculin after six months' service, as many as 47 were found to be positive reactors. These white sheep turned black were most unevenly distributed in the different companies of the regiment; and suspicion fell particularly on two companies because of the high rate of conversions from negative to positive reactions. In one of these companies not only had all the negative reactors ceased to be so, but there were also several clinically demonstrable cases of recent tuberculosis. It was eventually discovered that the healthy appearance and good record of service of a non-commissioned officer covered extensive pulmonary lesions. He had a plentiful supply of tubercle bacilli in his sputum, and his educational functions evidently provided good opportunity for spraying his audience with them.

A HYGIENE CONGRESS

From Oct. 25th to 28th inclusive the twenty-fourth Hygiene Congress was held at the Pasteur Institute, with Prof. E. Lesné, president of the Société de Médecine Publique et de Génie Sanitaire, in the chair. The indefatigable secretary-general of the Congress was Dr. R. Dujarric de la Rivière. The first subject on the programme was school hygiene, and several papers were read on the burning question of overwork in schools. There seems to be a growing suspicion that children stuffed like so many sausage skins are liable to burst. Dr. Armand-Delille interested the meeting by showing how effectively overwork has been avoided in the open-air school with which he is connected. Another subject discussed was a healthy milk-supply, mostly on highly technical lines, and a third was one which has not hitherto figured conspicuously in discussions on the hygiene of childhood. "Les inadaptés urbans" are the persons, children for the most part, who flag in towns and blossom out as soon as they are removed to the country, seaside, or mountains. Though every medical practitioner has practical experience of these urban misfits, their comprehensive study as a sociological, nosological group, as Prof. Mouriquand of Lyon pointed out, is comparatively new. While most children adapt themselves more or less to their urban milieu, some continue to be partial or total misfits in it. One of Prof. Mouriquand's proposals for dealing with these is the provision of special schools for them in the country, by the sea, or on mountains; he would like to see this extra-urban school conducted on most modern hygienic lines, with balanced diets and various hydropathic amenities. The average taxpayer may regard all this as costly and new-fangled nonsense, but in view of the number of persons who cannot live a town life without wilting we are likely to hear more of it.

PRONTOSIL ET HOC GENUS OMNE

What a polysyllabic strain the Prontosil group of drugs puts upon us! In a recent communication to the Academy of Medicine Dr. E. Fourneau and four of his collaborators have given an account of their investigations of the relationship between the chemical constitution and the therapeutic, antimicrobic activities of certain organic derivatives of sulphur. Their researches have shown that *p*-aminophenyl-sulphonamide (1.162 F.) is out-rivalled by several other derivatives of sulphur both with regard to high bactericidal action and low toxicity. The preparation they have found to possess the highest chemotherapeutic coefficient is di-acetyl-amino-di-phenyl-sulphone (1.399 F.).

HUMAN MILK FOR DELICATE BABIES

Both last year and this the Ministry of Public Health has given its support by circular letters to the practice of feeding delicate babies on milk gathered from various human sources under strict precautions, and certain hospitals and voluntary bodies have taken their cue from this official recommendation. As early as 1923 a hospital in Marseilles organised a service for the provision of human milk, and in November, 1936, Prof. Couvelaire's maternity service in Paris followed suit. Here the mothers who sell their surplus milk are given board and lodging, are not allowed to undertake heavy work, and live under medical supervision. The surplus milk is drawn off by an electrical suction pump into small sterilised flasks which are hermetically sealed. This milk is sold at cost price on the understanding that it goes exclusively to the infants specially needing it. The daily press and other vehicles of publicity are making this movement known and its adoption by other maternity centres may be anticipated.

MUNICIPAL HOSPITAL AT DONCASTER.—Doncaster town council have in principle approved the provision of a municipal hospital at an approximate cost of £100,000.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM A SALARIED SURGEON

II

BUT what about the teaching of students? This, say the conservatives, is where our system excels. Since this question must be discussed we may as well get on with the comparison that has to be made between the professorial or continental system and our own way of doing things.

It is said that we shine particularly in turning out men who are clinicians: they are able to arrive at a reasonably accurate diagnosis by taking a careful history and by making proper use of their senses in the examination of the patient. Mechanical aids are kept in the background, and the doctor with his little bag is able to face the world with some claim to self-sufficiency. Nothing could be better for the majority who go to join the ranks of the general practitioner.

Let us try to find out exactly what supports the special claims of the honorary physician or surgeon whose boast it is that he is "in touch with men in practice"; if he can say this, then it is supposed to follow that he is a good clinical teacher.

* * *

He is called to see patients in the depths of the country, and grave decisions have often to be made on clinical grounds alone. (This happens, too, in the life of a continental professor.) Yet with our own men the answer often is, "I'll take him into hospital—to-morrow if possible"—a sure indication that the diagnosis cannot be definitely settled without some special aid, or that the treatment cannot be carried out properly with the limited resources at the disposal of the very best G.P. in the district. Another factor is concerned with the management of cases seen in the consulting-room. The consultant has to be a first-rate clinician for the simple reason that the investigations that he would like to have carried out in certain cases would mean sending the patient on a tedious and expensive tour of the borough of Marylebone—and the cost is sometimes prohibitive. The bare minimum must suffice. For myself I am inclined to prefer this to the sausage-machine investigations of some American clinics, since it compels the clinician to have an accurate knowledge of the possible value and relevance of the various aids to diagnosis. Yet I know several men in consulting practice who complain bitterly and with justice about their inability to investigate their private patients as completely as they do those they treat in hospital. Lastly, there is the two-bags-and-a-portable-table part of the business. This is where one is really "in touch with the men in practice." The first case in which I acted as a private assistant was a man with an assortment of stones in his common bile-duct; we did the job at a cottage hospital in Hertfordshire. It took a long time to fish out the stones, and when we had scored six, the dear old practitioner in charge of the case was moved to fondle the stones as they lay on the abdominal towels. He was not scrubbed up. I covered them with a small towel and spent the rest of my time elbowing him out of the way when he was itching to poke our subsequent catches. It often means doing difficult work under conditions that do not make for success, and unless such conditions are unavoidable, nothing on earth can justify this front-parlour operating.

* * *

This is the sum of our teachers' peculiar qualifications for turning out men who are clinicians. This special claim is based, if not on a complete misconception of the teaching of medicine, then at least on a certain woolliness of mind. In this country there should be no risk of imagining that clinical investigation and mechanically aided investigation are alternative, or even rival, methods of diagnosis; the first the only method available for the G.P., the second the prerogative of the hospital worker.

The truth is that clinical investigation must always come first. No machine can tell us that the patient has a facial palsy, or a quinsy, a hydrocele, or varicose veins. But clinical signs can carry us only so far. A deranged viscus is under no obligation to whisper, let alone shout, its troubles to the most observant and sympathetic observer at the bedside. As a distinguished urologist once said of the kidney, "The worst about the wretched thing is that it's almost dumb."

Clinical examination narrows the field until one can say that the hæmaturia is due to A, B, C, or D, or that there is a lesion somewhere near the hip-joint, though in many cases the answer is one and one thing only.

* * *

Having gone so far, the special aids to diagnosis become essential for the completion of the investigation. A radiogram must almost always be taken to show the presence of a secondary malignant deposit in the spine; transillumination to show what is happening in the maxillary antrum; you may land up in court if you don't take a swab in a case of puerperal pyrexia; and you cannot diagnose pernicious anæmia for certain without a blood examination. We all have a few good stories about brilliant spot diagnoses or operations on board ship, but the heroics of the episodes that we enjoyed at the time would very properly be condemned on dry land. A man once came to the out-patient department of a hospital with what seemed to be a typical displacement of a knee cartilage. The H.S., a good clinician, decided to reduce it without bothering about a radiogram. It happened that the man's real trouble was a giant cell tumour in the lower end of the femur which had not yet expanded the bone. The trouble is that we sometimes skip the minutiæ of the clinical examination, because we think that radiography will pick up whatever we may have missed and tell us much more besides.

* * *

The inculcation of a right attitude in the mind of the student depends not on the status of the teacher so much as on his understanding of the subject. Some honorary physicians cannot be persuaded to go into a case seriously (in hospital practice at any rate) until all the investigations have been carried out, while, on the other hand, not a few professors

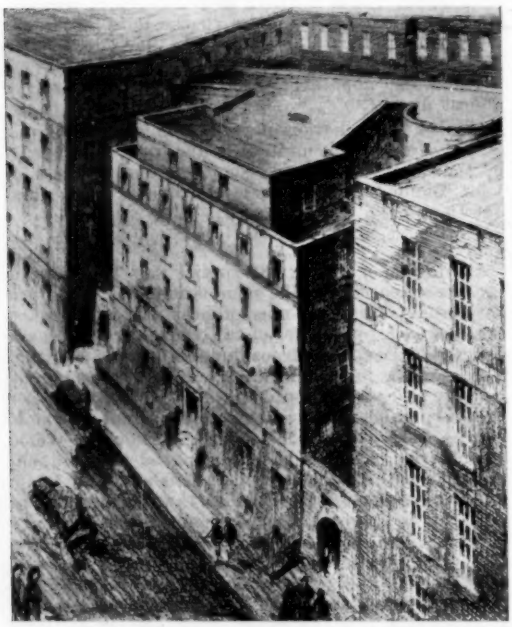
are renowned for the excellence of their purely clinical work.

We must not damn the whole-time men on the grounds of their remoteness from the problems of general practice or their so-called academic outlook. I have to thank a professor of medicine in London for the instruction he gave me in the clinical examination of a patient.

And now, having disposed of this question of teaching the student, we find that it is not so relevant as it appears to be. It applies only to teaching hospitals which, however important they may be, do not deal with the bulk of the sick who are in need of hospital treatment.

PAY-BEDS AT ST. MARY'S

H.M. THE QUEEN opened the private patients' wing at St. Mary's Hospital, Paddington, on Nov. 10th. The wing is intended for patients of moderate means and has 56 bedrooms at seven guineas a week and ten at twelve guineas. The building is in the characteristic style of its architect, Sir Edwin Cooper, and



Sketch of the new private patients' wing (centre). The block faintly indicated on the right has not yet been built.

stands behind the old hospital, fronting on the quietude of South Wharf-road. The red brick exterior is dignified and symmetrical, while the interior with its severe economy of space and simple ornamentation seems fitted for service without pretentiousness. The lay-out has been kept compact to save the nurses unnecessary steps, and the block is almost a complete hospital in itself. The bedrooms which occupy the top three floors are all single rooms except for a wardlet, furnished for children, which can be made into single rooms as required. The rooms are alike in having plugs for wireless, telephone, and electric fires, and the usual lighting system for calling nurses, but they vary in colour; the furniture, whether of oak or mahogany, is unobtrusively modern.

On the first floor there are two theatres with their satellite rooms. The theatres are equipped with a suction apparatus, an emergency lighting system, and a switch panel specially constructed to be spark-proof. Surprisingly the surgeons' basins are placed in short corridors, separated from the theatres by glass windows and reached through the sterilising rooms. The diagnostic radiographic department, the very latest of its kind, occupies most of the ground floor where there is also a small waiting-room. On the souterrain is a long dining-room for sisters and staff nurses facing south on a courtyard and ingeniously furnished with tables each of which can seat four or be extended easily to join with the next. The kitchens, on the same floor, are designed on the principle of a modern factory: goods brought to a yard are taken to an outer kitchen for preparation, and then pass on through the kitchen proper to leave as the finished article by the electrically heated lift at the other end. All cooking is to be done by gas or steam, and the air-conditioning plant (also installed for the theatres) will prevent the kitchen smells from percolating through the building.

The wing has cost about £80,000, the expense having been met from the gift of an anonymous donor, and it opens free of debt.

A NEW CHILDREN'S WARD

Occasion was also taken of the royal visit to open the children's medical ward, a centenary memorial to Lewis Carroll after whom it is called. The ward replaces the maids' quarters at the top of the Mary Stamford wing of the old hospital. It is a long room with windows the whole length and two observation cubicles at each end. The rest of the 26 cots will be provided with glass screens to diminish the risk of infection from bed to bed. In the middle of the ward stands a kiosk to serve as sister's room and also, surely, as an island for the children to walk round. The walls are happily decorated with large panels of scenes from "Wonderland."

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED OCT. 30TH, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 0; scarlet fever, 2601; diphtheria, 1694; enteric fever, 40; pneumonia (primary or influenzal), 819; puerperal pyrexia, 191; cerebro-spinal fever, 18; acute poliomyelitis, 21; acute polio-encephalitis, 2; encephalitis lethargica, 4; dysentery, 59; ophthalmia neonatorum, 90. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Nov. 5th was 3563, which included: Scarlet fever, 941; diphtheria, 1343 (diphtheria carriers, 19); measles, 106; whooping-cough, 263; puerperal fever, 17 mothers (plus 12 babies); encephalitis lethargica, 282; poliomyelitis, 13. At St. Margaret's Hospital there were 25 babies (plus 11 mothers) with ophthalmia neonatorum.

Deaths.—In 124 great towns, including London, there was no death from small-pox, 1 (1) from enteric fever, 11 (0) from measles, 1 (0) from scarlet fever, 9 (1) from whooping-cough, 25 (3) from diphtheria, 58 (12) from diarrhœa and enteritis under two years, and 36 (9) from influenza. The figures in parentheses are those for London itself.

Liverpool had 8 fatal cases of measles. Diphtheria was fatal in 17 great towns, Liverpool reporting 3, no other town more than 2. Liverpool also reported 10 deaths from diarrhœa, Newcastle-on-Tyne 6, Sunderland 4.

The number of stillbirths notified during the week was 260 (corresponding to a rate of 39 per 1000 total births), including 41 in London.

PUBLIC HEALTH

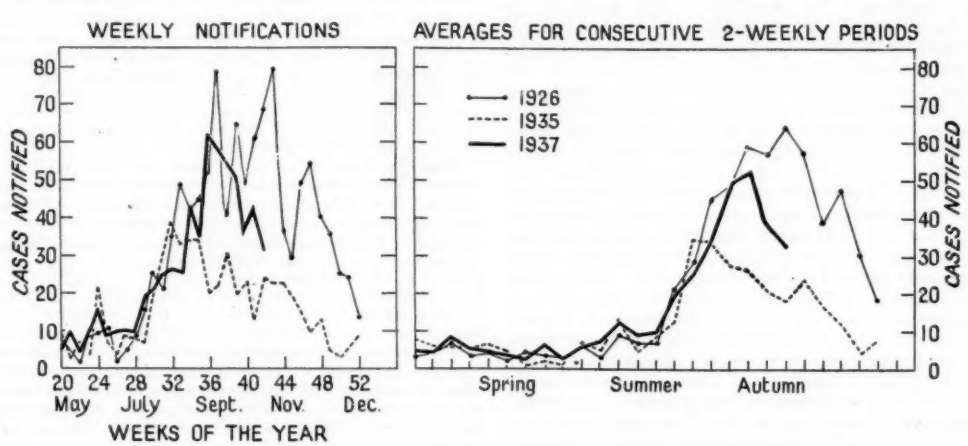
The Health of Londoners

Sir Frederick Menzies's report [1] for 1936 suggests that the birth-rate in London may really have touched bottom in 1932 and that the slight rise from 13·2 to 13·6 per thousand which has taken place since then may be the beginning of an upward trend. The infant mortality-rate was higher in 1936 than in the previous year—66 compared with 58 per thousand live births—mainly owing to the usual biennial epidemic of measles, which caused 584 deaths in 1936 and only 19 in 1935, and to a high mortality from diarrhœa, the highest recorded since 1921. In this report Mr. C. A. Gould continues his observations on migration. There are two well-defined streams: the first consisting of Londoners, mainly children and married adults, moving out into the outer ring and the home counties, and the second of young men and women from the provinces moving in in search of work. Before 1881 the net result of this movement was a gain to the county, but since then the emigrants have considerably outnumbered the entrants. The majority of these entrants, as might be expected, come from the home counties, but it may be noted that the proportion of aliens in London has doubled since 1861 and so has the proportion of Welshmen, whereas there are much fewer immigrants from Ireland. The maternal mortality-rate in 1936 was 1·98 per thousand live births, by far the lowest ever recorded. Good progress was made during the year with slum clearance, 4084 houses being dealt with, making a total of 14,311 since the passing of the 1930 Housing Act. The housing survey in the metropolitan boroughs showed, however, that 71,000 families, representing 9·1 per cent. of the population, were still living in overcrowded conditions. In the venereal diseases clinics defaulting is still a serious problem, and efforts are being made to check it by transferring patients to clinics more conveniently situated for them, by arranging for treatment of gonorrhœa to be given at hours when the medical officers are not in attendance, by grants for travelling expenses, and by following up defaulters by letters or personal visits. Though the death-rate from pulmonary tuberculosis showed a slight rise, the number of primary notifications of this disease fell from 6459 in 1935 to 6232, only the abdominal form being somewhat more frequent. The milk brought into London in large tanks is no longer sampled owing to the impossibility of tracing its farm of origin, but of the churn milk examined 9·3 per cent. of samples were found to be tuberculous, compared with 12·6 per cent. in 1935. Rather more than 300 selected tuberculous patients are now under treatment at the Papworth and Preston Hall settlements, not all of them being permanent settlers, and in addition a number of youths between 14 and 18 years are sent to the Burrow Hill colony where they receive a course, lasting one or two years, either in clerical work or as gardeners, certain of the latter being given employment later in the L.C.C. parks. Dr. F. J. Bentley has continued his inquiries into the number of tuberculous patients in whom intimate association with a previous case can be proved. Of the 5500 patients so far investigated roughly a third have exhibited contact of some sort, mostly with sufferers from sputum-positive disease. Dr. Bentley concludes that in order to find early cases every effort should be made to examine and supervise contacts, and especially young adult contacts, of living sputum-positive cases and of those recently dead from the disease.

[1] Annual Report of the London County Council, 1936. Vol. 3 (Part I). London: P. S. King and Son. Pp. 69. 1s.

Poliomyelitis in England and Wales

In THE LANCET of Sept. 25th (p. 767) we drew attention to the fact that the number of cases of anterior poliomyelitis notified in England and Wales (63 cases) was then higher than any weekly total recorded in this country since the relatively wide prevalence in the second half of 1926. With the then prevailing world-wide epidemicity of the disease this unfavourable position was obviously one for some disquiet. Fortunately that disquiet has been to some extent dispelled by the subsequent course of the notifications. Since the middle of September the number of cases reported has declined week by week and although in the weeks of both September and October the absolute numbers have been consistently and appreciably higher than the corresponding figures of 1935 (a fairly normal year for poliomyelitis) they have not been maintained at the exceptional levels of 1926. Up to the end of October 703 cases



have been notified in the current year, compared with 531 cases in 1935 and 853 in 1926.

South Devon has had an unusual incidence of acute poliomyelitis during the last few weeks. Cases have been reported from Newton Abbott and from scattered rural areas. The city of Plymouth has been free from other than sporadic cases since 1921, when there were 18 cases; there were none in 1936 and two only in 1935. Plymouth takes in cases of infectious diseases from neighbouring rural areas by arrangement, and following intimation that cases of poliomyelitis of some severity had occurred within the county area action was taken to ensure prompt treatment for all cases, overt or suspected. Up to the present only two cases with paralysis have occurred within the city but certain points of administrative interest have arisen. It has been arranged, Dr. T. Peirson tells us, for patients to be admitted in the first instance to the isolation hospital where they remain for three weeks. Patients are seen on admission by an orthopædic surgeon and initial treatment is carried out under his supervision, apparatus and specialist staff being provided by the municipal orthopædic hospital. At the end of three weeks, provided there has been no recrudescence, they are transferred to this hospital (120 beds), treatment being continued under the surgeon who first saw the case.

Lately there has been an increased incidence of "colds"—i.e., a febrile illness in which catarrhal symptoms are well marked; in the early stage of these attacks, Dr. Peirson remarks, the existence of poliomyelitis should be considered, at present. The question can however only be settled by examination of the cerebro-spinal fluid and it is impossible to admit all such cases to hospital for this purpose, while the performance of a lumbar puncture in the patient's home, especially in the case of a child, may be unwise. Incidentally the pathological findings have not been typical in clinically defined cases. So far all such cases have been isolated at home and appear to have recovered without paralysis. One case of epidemic encephalitis and one Landry's acute ascending myelitis are known to have occurred in the neighbourhood.

Milk Distribution in the Summer Holidays

The arrangements that were made for an experimental distribution of milk to certain London schoolchildren during these last summer holidays worked very smoothly. The distribution was made at six centres, five of them being at the children's gymnasiums in public parks, and was carried out by the park staff. Those children who received two bottles of milk daily on the doctor's recommendation either free or at half price in term-time received one bottle every morning, and at Battersea Park those who pay the full price in school were supplied with a bottle daily. The weather was kind, there being only two wet days during the experiment, but attendances were rather disappointing. At all the free centres the largest number of children attended on the first day and the numbers thereafter declined progressively, the average figure for the whole period being about 50 per cent. of those who had a doctor's recommendation. There was a poor attendance on August bank holiday, when many children were elsewhere with their parents, and on the second wet day, which occurred towards the end of the holidays when the first enthusiasm had waned. Curiously enough the attendance of the "paying" children was very much better, and, ignoring the wet days and bank holiday, their average increased from 73 per cent. in the first half of the holidays to 80 per cent. in the second half.

Water-borne Typhoid at Croydon

Twenty-seven cases of typhoid fever have been notified in Croydon since Oct. 19th. Two of them are seriously ill. Inquiry into the relation between the cases did not elicit any common milk- or food-supply, and Dr. O. M. Holden, medical officer of health, informed the council on Tuesday that the infection had been traced to contamination of the deep well in the chalk at Addington. Owing to the position and depth of this well the water from it has not been continuously chlorinated as has been done with the water from the shallow wells at Waddon and Surrey-street. The Addington water was cut off from the public on Nov. 4th and investigations are in progress to trace, if possible, the specific source of contamination.

THE LANCET 100 YEARS AGO

November 11th, 1837, p. 230.

From a clinical lecture on the general treatment of surgical cases; delivered at University College Hospital by Mr. Liston.

GENTLEMEN who have come to the hospital for the first time, after witnessing the practice of their masters in public or private, are generally struck with the mode in which the local treatment of injured and inflamed parts is conducted. . . . They are agreeably surprised also, I believe, at the absence of fœtor, and at the airiness and sweetness of our wards. A great deal of this arises out of the simple, though I trust I may add efficient, local management. In the first place, you will notice that great attention is paid to the position of injured parts. The extremities, you will observe, are always considerably elevated on inclined planes above the level of the trunk, and the return of blood is thus favoured from the affected part. . . . You will find that all our fractures, lacerated and bruised extremities, sprains, ulcerated, swollen, and inflamed limbs are managed on this principle, and if so treated from the first, the action is kept under, the patients suffer comparatively very little, and the parts regain their normal condition speedily, and with little further interference. Rest of the affected part is also essential to its recovery, and this must occasionally be secured by proper apparatus, in the application of which, however, great care must be observed, so that no obstacle may be offered to the free circulation of the limb. . . .

The simple management of wounds is also deserving of your attention. Those produced by accident are seldom so clean and free from bruising of their edges, or if so, are seldom made in so favourable a direction as to enable us to indulge a hope of their healing without discharge, and by the first intention. . . . Discharge is to be favoured by all possible means, and this is done after the bleeding (which is seldom very profuse unless some large vessel is divided pretty clean) is arrested, by the application of a poultice, or of the water-dressing. . . .

Intentional wounds, those made for the removal of diseased parts, of parasitical formations, may often be so planned that the edges can be laid together with great accuracy, and retained by suture, or plaster, so that they shall heal with little, if any, discharge. . . . The sutures are few in number, and removed at a very early period. The plaster is very adhesive, but unirritating, and keeps its hold very often until the cure is completed. . . . A load of dressing always interferes with the circulation, heats the part, puts it in a forcing-bed, as it were, encourages and retains discharge, thus giving the patient great annoyance from stench, great pain in their removal and reapplication; much harrassing and unpleasant duty is also imposed on the surgeon. The wounded part is, on the contrary, covered merely by a few strips of plaster, lies cool and comfortable.

CORRESPONDENCE

SPECIALISM IN SURGERY

To the Editor of THE LANCET

SIR,—In his presidential address to the British Orthopædic Association Mr. Rowley Bristow[1] has returned to the old problem of the degree to which specialisation in surgery should be carried. He brings up some interesting points in his discourse. He claims that surgery has already been decentralised, and that it should be broken up into small sections to which specialised surgeons should be confined. He criticises the current method of education of medical students, recommending that in a general unit students should be taught the "principles of surgery," and the "rudiments of practice" which, he explains, mean "inflammation, the examination of the patient in bed, note-taking, and elementary theatre technique." Then the student is to proceed to the real business of acquiring surgical knowledge by attending the clinics of a series of specialists. "He can then see surgery as a whole." Now this is the ultimate object of training of the average medical student destined to become a general practitioner, but if "no single mind is big enough to cope with the mass of knowledge which is now available," and if, as Mr. Bristow affirms, any interest in a specialty expressed by a general surgeon is "one of lip service only" how can we expect the unfortunate medical student to perform this impossible task and "see surgery as a whole" which he must do if he is to advise his patients?

The truth is that there has been some confusion of thought about specialisation. It is convenient to have cases of one kind collected together that skill in the technical art of surgery may be acquired, but can it be seriously maintained that the sum of human knowledge of surgical diseases of the rectum, for instance, is a large enough realm of learning to occupy the whole mental energy of a man of average intellect? And is it a very great task for a general surgeon of such ability to be versed in all that knowledge which has been accumulated in the treatment of fractures? The suggestion when presented like this becomes absurd. If the general surgeon should disappear it will be a very great loss to medical education and to surgical progress. There are many examples of general surgeons making contributions to specialties. With the exception of a few details in technique the whole of the principles of the treatment of fractures were worked out by general surgeons. Has Arbuthnot Lane, pre-eminently an abdominal surgeon, made no contribution to the operative treatment of broken bones, and did not Macewen work out the surgery of middle-ear suppuration? Many other examples could be quoted. Visits to clinics in this country and abroad have impressed upon me the extraordinarily good influence upon surgery of the sanity of outlook of the outstanding general surgeons, and also the extraordinary versatility of these gifted individuals in operating upon such different regions of the body as the thorax, abdomen, limbs, and even the central nervous system.

I believe that the main surgical teacher of the student who is to become a practitioner should be a general surgeon. This does not mean that he must be a specialist in every department of surgery, but he should be of sufficient mental calibre to be capable of taking an interest in and talking intelligently to his students about these specialties. The general skill and surgical manipulations required to remove a stomach or rectum, a cartilage in the knee, or to perform a neurorrhaphy, all belong to the same order of technical handicraft. It is obvious, if a sufficient experience has been gained, that there is no reason why a general surgeon should not excise a knee, or an orthopædic surgeon an appendix. But that is where segregation of cases and specialisation is necessary in order to give certain individuals the opportunity for acquiring the necessary skill. In the past general surgeons frequently took a particular interest in one branch of surgery or, rather surprising to modern specialists, in two or more branches whilst continuing their general work. This is how specialists arose, and with the right type of mind, with the man who knows his limitations, it is ideal. It is to be hoped that specialisation will not become too rigid in its limits, that this kind of interest may still be allowed the general surgeon.

In the hospital to which I am attached there is an orthopædic department and a fracture clinic under the care of the orthopædic surgeon with two assistants who are members of the general professorial unit. The system works admirably. Curiously enough the only compulsory surgical lectures are those given by the orthopædic surgeon and the ophthalmologists. Systematic lectures in general medicine and surgery have been abolished. The fight for recognition of the orthopædic surgeon is won, as is also the fight for fracture clinics. All the knowledge necessary for the adequate treatment of fractures has been available for many years. The organisation for applying such knowledge was lacking. It is to the great credit of the orthopædic surgeons that they recognised this, and worked for the establishment of efficient clinics. Having obtained them every right thinking man agrees with the justice of delegating such clinics to the orthopædic surgeon's care.

It is to be hoped that the undergraduate student will still be associated with a general surgeon as his main teacher, and that he will continue to attend the special departments as he does in many schools now. It is also to be fervently desired that there may be increased opportunity for liaison between the special and general departments as is actually in being between the orthopædic department and the professorial unit at St. Mary's. In this way young surgeons engaged in the general work of the unit become interested in orthopædic work. Such young men would seem to form the best recruits for the orthopædic specialty.

I am, Sir, yours faithfully,

London, Nov. 8th. CHARLES PANNETT.

[1] *Lancet*, Nov. 6th, 1937, p. 1061.

SULPHANILAMIDE AND RELATED SUBSTANCES

To the Editor of THE LANCET

SIR,—The report in your last issue of a discussion on this subject at the Royal Society of Medicine contains one misstatement—or rather two—for which I must accept the responsibility. The misleading sentences run: "Within the last few months some substances had been described which differed from sulphanilamide and apparently had a stronger curative effect. Among these were Proseptasine . . . and Soluseptasine, and the sulphones, in which there was no sulphonamide grouping."

These three substances should not have been considered together. The point I intended to make was

that one of the sulphones, recently described by Dr. Buttle and his co-workers, had a greater curative activity in spite of the fact that it had no sulphonamide radical (and presumably was not converted into a substance containing such a radical in vivo). Proseptasine and Soluseptasine on the other hand have a sulphonamide radical but have *not* a greater curative activity than sulphanilamide.

I am, Sir, yours faithfully,

LEONARD COLEBROOK.

Queen Charlotte's Maternity Hospital, Hammersmith, W., Nov. 8th.

SULPHANILAMIDE IN GONORRHŒA

To the Editor of THE LANCET

SIR,—It is difficult to assess the value of any new form of treatment, and although sulphanilamide may have a permanent place in the treatment of acute gonorrhœa there is, I think, need for caution in its use apart from the danger of poisoning. It has a rapid effect on signs and symptoms. The redness of the meatus disappears quickly and the amount of discharge diminishes at once. If the improvement continues it may lead the patient into believing that a cure has been obtained and he may stop attending doctor or clinic. If the condition is a pure anterior infection all may be well, but if the posterior urethra is infected, as it is in most cases, although the patient is well superficially, the urine is sure to contain pus and the patient is still highly infectious.

In a recent case of my own with a posterior infection I was struck by the improvement with Prontosil Album (2 tablets three times a day for 14 days—a total of 42 grammes) combined with weak permanganate irrigation. There were no symptoms referable to the prostate but on rectal examination I found the gland large, hard, and tender, and the urine was cloudy with pus. The importance of this observation is that if the public get to know that sulphanilamide cures the symptoms and they can obtain the drug from a chemist they may be tempted to treat themselves and the result will be disastrous.

I am, Sir, yours faithfully,

Devonshire-place, W., Nov. 8th. RICHARD ROPER.

PROPHECY

To the Editor of THE LANCET

SIR,—Prophets, even statistical prophets, are so frequently disappointed by events that I cannot resist the temptation to record a successful venture. On p. 287 of my book "Epidemics and Crowd-Diseases," published in 1935, the following passage occurs:

> "Some years ago, in the course of a discussion I said that there was a good deal of evidence in support of the proposition that Edward Jenner was a rogue—as indeed there is, and also a good deal (in my opinion, a good deal more) of evidence against it. I shall no doubt always be quoted by some fanatics as having said that Jenner *was* a rogue."

On p. 197 of the *Vaccination Inquirer*, bearing date Nov. 1st, 1937, the following passage occurs:

> "The Prime Minister opened the campaign on 30th September in a speech broadcast from the London School of Hygiene and Tropical Medicine. A member of the staff of that school is Professor Major Greenwood, who has made a thorough study of Jenner's and Creighton's claims and has come to the conclusion that there is no doubt that Jenner was a rogue."

To save correspondence, perhaps you will permit me to say that my forecasts of (1) the end of the war in Spain, (2) the number of deaths in the next epidemic of influenza, and (3) the winner of the Derby in 1938 are not yet ready.

I am, Sir, yours faithfully,

London, W.C., Nov. 3rd. MAJOR GREENWOOD.

A REVIEW

To the Editor of THE LANCET

SIR,—My attention has been called to the review of the new edition of "Surgical Treatment" which appears in THE LANCET for Sept. 11th, 1937. Your reviewer evidently thinks very badly indeed of this work, and in so thinking is, of course, within his rights for we can have no quarrel with anyone who disagrees with or does not like what we have written.

Your reviewer refers to the first and last chapters of a three-volume work in a manner which suggests that a great part of the material is of interest only to hospital administrators, and from that point proceeds to unequivocally condemn the remainder of the book, making several statements which are not capable of substantiation. Among other things he states that the work contains many anatomical errors and that the views of the authors on the pathology of certain conditions are not in keeping with modern teaching. Since the brief anatomical sections are all taken from sources which have long been recognised as standards, and as anatomy is one thing which does not change, and further since the book is limited to discussion of treatment and contains no pathology as such, we are somewhat mystified as to the interpretation of such statements. Throughout the rest of the review, which at times would appear almost to be inspired by personal animosity, he continues to criticise in general with no specific statements. Would it not have been evidence of good faith to mention some of these things to which he so vehemently objects?

It is of interest to note that in the review of the first edition of "Surgical Treatment" THE LANCET then had no good word to say for it and prophesied that it would meet with but little success. The inaccuracy of that forecast is attested by the fact that the first edition sold over 20,000 sets, no small proportion of which went to the United Kingdom.

In conclusion, may I repeat that this letter is not inspired by hypersensitiveness to criticism, but I believe that when a reviewer condemns a work as your reviewer has done in this instance, he should show not only the authors but the journal submitting the book to him the courtesy of actually reviewing it.

I am, Sir, yours faithfully,

Philadelphia, Oct. 21st. CALVIN M. SMYTH, Jr.

*** We do not feel that errors of anatomy are any less misleading because they have been made before, nor do we construe the word pathology in so narrow a sense as Dr. Smyth. The treatment of surgical conditions must ultimately depend on the views held by the surgeon about their nature and origin.—ED. L.

PERIOSTEAL BONE

To the Editor of THE LANCET

SIR,—There is one important feature of "The Rôle of Chemiotaxis in Bone Growth" on which I hoped your reviewer (Oct. 23rd, p. 968) would express his opinion—viz., the explanation of periosteal bone. This subject, as Sir Arthur Keith has pointed out, has been the subject of bitter controversy for a century and a half. Illingworth and Dick point out that "the battle of the periosteum is not yet won." By

adopting the view of John Hunter that the arteries bring bone to its destination and the phenomenon of disruptive chemiotaxis his theory is vindicated and it is possible to lay down the law that "wherever young fibrous tissue, particularly blood-vessels, come into contact with bone or a calcified deposit bone will form." I am, Sir, yours faithfully,

Harley-street, W., Nov. 8th. A. P. BERTWISTLE.

KETONÆMIA IN INFANCY

To the Editor of THE LANCET

SIR,—Dr. Gray says (*Lancet*, Oct. 30th, p. 1018) that fatty changes in the liver are five times as common in fatal cases of vomiting in infants over the age of 3 months as in those under this age. We have been impressed by the frequent occurrence of fatty degeneration of the liver in infants dying not only from gastro-enteritis but also from other causes. In many of these infants, especially the younger ones, there was no macroscopical evidence of fatty change, but histological examination, after staining with Scharlach R, revealed much fat replacement of the liver cells.

The result of an analysis of 100 consecutive autopsies at the Hospital for Sick Children, Great Ormond-street, on infants dying of gastro-enteritis and congenital pyloric stenosis is as follows:

	Cases.	Showing fatty change.
Under 3 months ..	47	 19
Over 3 ,, ..	53	 41

Of the 100 cases, 27 were examined microscopically. It will be seen from these figures that the incidence of fatty changes in the liver in infants under 3 months is approximately half that in infants over this age. The disparity between the two age-groups is thus much less than in Gray's series. Our figures suggest that although the livers of the older infants are more subject to fatty degeneration, this can and does take place in quite a high proportion of infants dying from gastro-enteritis in the first three months of life.

It would be interesting to learn of the experience of other readers who have the opportunity of examining these cases at autopsy.

We are, Sir, yours faithfully,

G. H. NEWNS,
R. O. STERN.

Hospital for Sick Children, Great Ormond-street, W.C., Nov. 9th.

To the Editor of THE LANCET

SIR,—I must thank Dr. Graham for his kindly criticism of my article, but would like to point out that no part of the latter was meant to suggest in any way that I used Rothera's test as specific for acetone. The only reference in which this is suggested is a quotation from Maizels' paper in which he says: "Diacetic acid was never found in the urine." It would have been better had he said "the ferric chloride reaction was never positive"; but in any case his meaning is quite clear.

I agree with Dr. Graham that the expression acetonuria is a misleading one and should be replaced by ketonuria, as indeed it has been in my paper.

I am, Sir, yours faithfully,

C. H. GRAY.

University College Hospital Medical School, Gower-street, W.C., Nov. 8th.

MY POST-BAG

To the Editor of THE LANCET

SIR,—I think the last letter of Postman's Friend can hardly represent the attitude of every doctor, though he suggests it does, if only because according to his statement his knowledge of drugs is mainly limited by his hospital teaching; in other words his attitude is unprogressive, while some of us hope that ours is not.

At the same time one must allow that there is an enormous waste in advertising and samples, but perhaps it is not so much the fault of the manufacturers as of ourselves. Though I do not profess to read anything like every advertisement I receive, I must confess that not a few are most instructive, and some could not be surpassed for scientific accuracy conveyed in lucid language by any text-book or lecturer with which I am acquainted. If the result of sending for samples is "the corner of every surgery which is full of these wretched bottles and jars and boxes" the result is almost certainly waste, but a little system would prevent it and turn it into a valuable help. Some years ago I invested in a small cabinet and labelled the various drawers "Digestive," "Endocrine," "Vitamin," &c., and as the samples come I put them in the appropriate drawer. The result is that now if ever I have a difficult case, or maybe an ideal case on which to try a sample, I can rapidly run through all the samples I have likely to be applicable to it. Sometimes just glancing through the samples will start a helpful line of thought; sometimes a sample may be tried, always with intense interest to myself, often with benefit to my patient, and occasionally with a subsequent comment to the manufacturer.

As there may be others like Postman's Friend who do not realise the valuable help which manufacturers are able and willing to give, putting in the power of even the humblest and remotest of us to do a bit of clinical research, a recent example may be worth quoting. A while ago I received an advertisement of a preparation of vitamin C. Reading it reminded me of a case of purpura which had been under my care for ten years; this woman, among other things, suffered from incapacitating menorrhagia. I sent for a sample and at what I judged the correct time I commenced to give it to this patient. The result was so favourable—whether due to the treatment or not I do not say, but it was the least incapacitating menstruation she had had in ten years—that I wrote to the makers and asked for comments on the case. Yesterday I received a further generous sample and a letter which not only suggested alteration of dosage but stressed the need of actually testing whether the woman had a vitamin-C deficiency, and enclosed were instructions how to apply the test and chemicals wherewith to do it.

In my experience this is typical of the scientific and helpful way in which nearly all firms treat requests for samples or further information, and though cutting off advertisements and samples might diminish the work of the postman it would deprive us of a magnificent if neglected opportunity, an opportunity for which, as a profession, I think we should be profoundly grateful.

I am, Sir, yours faithfully,

Nov. 5th. ANOTHER G.P.

To the Editor of THE LANCET

SIR,—We would like to thank your correspondent M.B., B.S. for his able reply to Postman's Friend. For years we have offered a free service to the medical profession to notify changes of address, &c., and on the form which we use we ask the practitioner his wishes in regard to circular matter, including an optional clause, "I do, or do not wish to receive ethical circulars." In some cases the response is that the practitioner is only interested in literature, or

specific subjects, but it is in very rare and exceptional circumstances that an entirely negative reply is received. In such cases the name is immediately removed from our lists and the practitioner's request conveyed to many large manufacturing chemists who use their own lists for mailing. As suggested by M.B., B.S., if any of the medical practitioners with whom Postman's Friend is in contact, who throw their circulars into the wastepaper basket, will communicate their wishes in connexion with circular matter to us, we shall be only too pleased to eliminate the names from any or all of our distributions.—We are, Sir, yours faithfully,

AN ADDRESSING COMPANY.

Bedford-row, London, W.C.1, Nov. 5th.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

Surg. Comdr. R. P. Ninnis retires at own request, with rank of Surg. Capt.

Surg. Comdrs. H. Hurst to *Victory* for R.N. Hosp., Haslar; A. Craig to *Caledonia*; R. E. Rampling to *Victory* for R.N.B.; and R. A. Brown to *Pembroke* for R.N.B.

Surg. Lt.-Comdr. H. H. Fisher to be Surg. Comdr.

Surg. Lt.-Comdrs. C. H. Birt to *Dunedin*; and A. N. Forsyth to R.N. Hosp., Hong-Kong.

Surg. Lts. D. A. Hovenden to *Rochester*; W. Boyd to *Victory* for R.N.B.; and G. H. C. R. Critien to *Pembroke* for R.N.B.

Mr. M. Chadwick has been appointed Admiralty Surgeon and Agent at King's Lynn.

ROYAL NAVAL VOLUNTEER RESERVE

The King has approved the award of the Royal Naval Volunteer Reserve Officer's decoration to Surg.-Comdr. G. A. Clark.

Surg. Lt.-Comdr. (D) W. Hume to *Newcastle*.

ROYAL ARMY MEDICAL CORPS.

Lts. to be Capts.: W. Thomson, W. Stewart, E. A. Smyth, R. S. Hunt, G. B. Heugh, J. A. Davidson, J. V. L. Farquhar, G. G. Smith, P. H. Ball, E. H. Evans, W. N. L. Haynes, J. R. Kellett, and K. G. F. Mackenzie.

The surname of Lt. G. G. Sherriff is as now shown and not as in our issue of Sept. 18th.

Short Service Commission: Lt. (on prob.) W. G. MacDougall is restd. to the estabt.

The following candidates have been selected for short service commissions as lieutenants on probation, R.A.M.C.: G. H. H. Dunkerton, J. C. Lambkin, T. M. Fowler, G. F. Valentine, G. H. Saunders, W. A. McD. Scott, A. J. N. Warrack, C. A. Moynihan, J. McGhie, P. D. Stewart, E. D. H. Williams, J. H. Milligan, H. J. Anderson, E. M. Rowland, R. P. Hendry, G. W. D. Reeves, S. Kavanagh, D. Matheson, O. Walker, P. J. Fox, B. Lapedus, H. F. Lambert, T. P. Howkins, J. M. Corall, S. O. Bramwell, T. A. Pace, R. A. Bond, S. Ward, J. Ledingham, D. D. Maitland, A. F. Murray, W. M. Stewart, and A. A. P. A. Ferro.

This is the largest number of candidates taken at a single entry to the R.A.M.C. since the Great War, and brings the total of short service commissions given during the present year to fifty-seven.

REGULAR ARMY RESERVE OF OFFICERS

Lt.-Col. G. G. Collet, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

ARMY DENTAL CORPS

Short Service Commission: A. N. F. Stannard to be Lt. (on prob.).

Lt. F. E. S. Brailsford, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY

Lt.-Col. R. C. Clarke, O.B.E., T.D., to comd. 2nd (Southern) Gen. Hosp.

Capt. F. Heywood-Jones to be Maj.

ROYAL AIR FORCE

Wing Comdr. A. Dickson to R.A.F. General Hosp., Iraq, Hinaidi, for duty as medical officer.

Squadron Leader C. W. Coffey to R.A.F. Station, Cranfield, for duty as medical officer.

Flight Lts. L. M. Corbet to No. 5 (Army Coöperation) Squadron, Chaklala, India; F. W. P. Dixon to Home Aircraft Depot, Henlow; D. G. Smith to R.A.F. Hosp., Aden; and N. P. R. Clyde to Headquarters, R.A.F., Iraq, Hinaidi.

Flight Lt. R. E. W. Fisher is transferred to the Reserve, Class D.

Flying Offr. S. Paul to R.A.F. Station, Kalafrana, Malta.

Dental Branch.—Flight Lt. C. R. Stone is transferred to the Reserve, Class D.

ROYAL AIR FORCE VOLUNTEER RESERVE

G. P. Smith is granted a commission as Flight Lt.

D. M. Wallace is granted a commission as Flying Offr.

INDIAN MEDICAL SERVICE

Maj. A. S. Garewal to be Lt.-Col.

Maj.-Gen. Sir F. P. Connor, Kt., D.S.O., *K.H.S.*, retires.

COLONIAL MEDICAL SERVICE

The following appointments have been made: Dr. W. M. Chapman, Medical Officer, Kenya; Dr. H. P. Lyon, Assistant Medical Officer, Bahamas; Dr. C. B. Phillips, Medical Officer, Jamaica; and Dr. A. V. Wells, Medical Officer, St. Lucia. Dr. J. C. R. Buchanan (Somaliland) becomes Senior Medical Officer, Aden.

DEATHS IN THE SERVICES

Surgeon Captain EDWYN ROBERT GRAZEBROOK, R.N., retired, who died at Barnstaple on Nov. 5th, aged 65, was educated at King's College, London, and qualified M.R.C.S. Eng. in 1896. He at once joined the Navy as a surgeon, being appointed to *Impregnable* (Devonport) and then to various ships. From 1917 onwards he served as surgeon commander in the battleship *Queen*, and in 1921 was appointed medical officer to the Royal Marine Forces at Chatham.

LONDON MEDICAL SOCIETIES

AT the opening of a new session we are again giving for the convenience of our readers the names of presidents and hon. secretaries of London medical societies, with the addresses at which they can be approached.

Royal Society of Medicine.—President: Sir John Parsons, F.R.S. Hon. secretaries: Mr. John Hunter and Dr. T. C. Hunt. (1, Wimpole-street, W.1.)

Medical Society of London.—President: Mr. J. E. H. Roberts. Hon. secretaries: Mr. A. Simpson-Smith and Dr. E. L. Bartleman. (11, Chandos-street, W.1.)

Hunterian Society.—President: Dr. D. C. Norris. Hon. secretaries: Mr. A. E. Porritt and Dr. John Leebody. (27, Harley-street, W.1.)

Harveian Society.—President: Dr. A. H. Douthwaite. Hon. secretaries: Dr. F. S. Cooksey and Mr. E. G. Muir. (30, Wimpole-street, W.1.)

Royal Society of Tropical Medicine.—President: Col. S. P. James, F.R.S. Hon. secretaries: Dr. C. M. Wenyon, F.R.S., and Dr. Hamilton Fairley. (Manson House, 26, Portland-place, W.1.)

Royal Medico-Psychological Association.—President: Dr. Douglas McRae. Hon. general secretary: Dr. W. Gordon Masefield. (11, Chandos-street, W.1.)

Society of Medical Officers of Health.—President: Dr. James Fenton. Executive secretary: Mr. G. L. C. Elliston. (1, Thornhaugh-street, W.C.1.)

Association of Industrial Medical Officers.—President: Dr. L. P. Lockhart. Hon. secretary: Dr. Donald Stewart. (I.C.I. Metals Ltd., Birmingham, 6.)

Tuberculosis Association.—President: Dr. S. Roodhouse Gloyne. Hon. secretary: Dr. Frederick Heaf. (Manson House, 26, Portland-place, W.)

British Institute of Radiology.—President: Dr. Russell Reynolds. Hon. secretaries: Dr. R. Boulton Myles and Mr. L. H. Clark, Ph.D. (32, Welbeck-street, W.1.)

Society of Radiotherapists of Great Britain and Ireland.—President: Dr. N. S. Finzi. Hon. secretaries: Mr. B. W. Windeyer and Mr. R. F. Phillips. (11, Chandos-street, W.1.)

Medico-Legal Society.—President: Mr. Justice Humphreys. Hon. secretaries: Mr. Artom A. Romain and Dr. W. G. Barnard. (120, Seymour-place, Bryanston-square, W.1.)

London Association of the Medical Women's Federation.—President: Miss E. C. Lewis. Hon. secretary: Mrs. Philippa Martin. (40, Wimpole-street, W.1.)

Medical Society of Individual Psychology.—President: Sir Walter Langdon-Brown. Hon. secretary: Dr. Ethel Dukes. (1, Queen Anne-street, W.1.)

Society for the Study of Inebriety.—President: Mr. Arthur Evans. Hon. secretary: Dr. T. N. Kelynack. (144, Harley-street, W.1.)

London Jewish Hospital Medical Society.—President: Prof. Samson Wright. Hon. secretary: Dr. Max Sorsby. (London Jewish Hospital, Stepney Green, E.1.)

St. John's Hospital Dermatological Society.—President: Dr. W. N. Goldsmith. Hon. secretary: Dr. I. Muende. (10, Wimpole-street, W.1.)

Chelsea Clinical Society.—President: Dr. T. A. Butcher. Hon. secretaries: Mr. A. Rugg-Gunn and Mr. H. Paxton Baylis. (35, Harley-street, W.1.)

Hackney Medical Society.—President: Dr. A. J. Ambrose. Hon. secretary: Dr. H. Stark. (26, Stoke Newington Common, N.16.)

Hampstead Medical Society.—President: Dr. J. C. Andrews. Hon. secretaries: Dr. N. A. Sprott and Dr. Oliver Plowright. (53, Belsize-park, N.W.3.)

Kensington Medical Society.—Chairman: Dr. James Fenton. Hon. secretary: Dr. Benjamin Barling. (St. Mary Abbots Hospital, W.8.)

North London Medical and Chirurgical Society.—President: Dr. James Maxwell. Hon. secretaries: Dr. W. E. Snell and Dr. Jessie Campbell Maxwell. (Royal Northern Hospital, Holloway-road, N.7.)

North-West London Medical Society.—President: Sir Walter Langdon-Brown. Hon. secretary: Mr. Lionel Green. (127, Harley-street, W.1.)

Paddington Medical Society.—President: Dr S. Crown. Hon. secretary: Dr. C. R. McClure. (68, Loudoun-road, N.W.8.)

Priory Medical Society.—Hon. secretary: Mr. F. W. M. Pratt. (49, King's-gardens, N.W.6.)

South-West London Medical Society.—President: Dr. E. G. Housden. Hon. secretaries: Dr. J. J. Ross Mackenzie and Dr. A. W. Wells. (119, North Side, S.W.4.)

West London Medico-Chirurgical Society.—President: Dr. D. G. Rice-Oxley. Hon. secretaries: Mr. A. Simpson-Smith and Dr. H. W. A. Post. (77, Harley-street, W.1.)

West Kent Medico-Chirurgical Society.—Dr. H. Bowen Williams. Hon. secretary: Dr. C. J. B. Buchan. (Ledard, 267, Baring-road, Grove Park, S.E.12.)

MEDICAL DEFENCE UNION: ANNUAL MEETING.—Mr. Eric Pearce Gould presided at the annual meeting of the Union on Oct. 28th when he drew attention to continuous increase in membership and in the work done for members. He expressed the general regret felt at the retirement of Dr. Henry Robinson from the position of treasurer after nine years' service. Largely as a result of his foresight and wisdom the cash resources of the Union had doubled during that period. Mr. Pearce Gould emphasised the provision made by the Union for retired life membership of which increasing use was being made. Messrs. Hempsons were reappointed solicitors and Messrs. Lewis Hardy and Co. auditors. At a subsequent meeting of the elected members of council Mr. E. D. D. Davis was elected treasurer and Mr. Pearce Gould was re-elected president.

THE NEW COMMITTEE ON NURSING

The personnel of the interdepartmental committee on nursing appointed by the Minister of Health and the President of the Board of Education has now been announced. The terms of reference to the committee are:

To inquire into the arrangements at present in operation with regard to the recruitment, training, registration, and terms and conditions of service of persons engaged in nursing the sick, and to report whether any changes in those arrangements or any other measures are expedient for the purpose of maintaining an adequate service both for institutional and for domiciliary nursing.

The names of those chosen to serve are as follows:

The EARL OF ATHLONE, president of the Queen's Institute of District Nursing (chairman).

Miss M. DOROTHY BROCK, Litt.D., headmistress of the Mary Datchelor School.

Mr. E. W. CEMLYN-JONES, chairman of the public health and housing committee of the County Councils Association.

Miss GERTRUDE COWLIN, S.R.N., visitor for the Central Council of District Nursing in London.

Mr. RHYS J. DAVIES, M.P.

Mr. H. A. DE MONTMORENCY, a principal assistant secretary, Ministry of Health.

Sir FRANCIS FREMANTLE, F.R.C.P., M.P.

Sir ARTHUR HALL, F.R.C.P.

Mrs. F. A. KEYNES, J.P., a member of the public assistance committee of the Association of Municipal Corporations.

Miss MEGAN LLOYD GEORGE, M.P.

Mr. C. W. MAUDSLAY, a principal assistant secretary, Board of Education.

Sir FREDERICK MENZIES, F.R.C.P.

Miss E. M. MUSSON, S.R.N., chairman of the General Nursing Council for England and Wales.

Mr. R. H. P. ORDE, hon. secretary, British Hospitals Association.

Dr. GILBERT E. ORME.

Prof. R. M. F. PICKEN, M.B.

Miss D. M. SMITH, S.R.N., matron of the Middlesex Hospital.

Mr. H. S. SOUTTAR, F.R.C.S.

Dr. W. REES THOMAS, a medical senior commissioner, Board of Control.

Miss FRANCES WAKEFORD, S.R.N., a staff nurse at the Kingston and District Hospital of the Surrey County Council.

Mr. H. M. WALTON, director of education, Middlesex County Council.

The secretaries to the committee are:

Sir WELDON DALRYMPLE-CHAMPNEYS, F.R.C.P., of the Ministry of Health, and

Mr. W. A. B. HAMILTON, of the Board of Education.

The Minister of Health has arranged for the services of his women inspectors to be placed at the disposal of the committee for the purposes of advice, and inquiries on technical nursing matters.

All communications intended for the committee should be addressed to the secretary, Inter-Departmental Committee on Nursing Services, Ministry of Health, Whitehall, London, S.W.1.

ROYAL VETERINARY COLLEGE.—On Tuesday last the King opened the new buildings of the Royal Veterinary College, at Camden Town, which replace those erected in 1791. The college has now 367 students, taking a five-years course, and under its new charter power has been taken to seek admission as a school or faculty of the University of London.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Hours of Work in Industry

IN the House of Commons on Nov. 3rd Mr. PALING moved :—

That this House, recognising the claim of the worker to benefit from the increased productivity of modern industry and realising also the urgent necessity for absorbing many of the present unemployed, calls for immediate measures for securing a substantial reduction in working hours.

The Government, he said, were carrying through a physical fitness campaign, but when a man had worked 48, 54, 60, and 66 or 70 hours a week he had not much time to go in for physical fitness; he wanted to go to bed. If the Government could not give them the forty hour week at least they might do something for those people who had to work abnormally long hours.

Sir ARNOLD GRIDLEY moved the following amendment :—

That this House is in favour of the reduction of working hours where it is practicable to make such a reduction without reducing the existing earnings of the workpeople, and is further of opinion that the adjustment of hours and wages is a matter primarily for settlement by negotiation between the employers' and workpeople's organisations in each industry.

What was of vital importance to the worker was, he said, not so much what he got per hour, or how many hours he worked per week, as what his annual income was. These matters should be brought about not by trying to legislate for the whole of industry, but by leaving each industry to deal with its own problems and arrange its own conditions between employers and employed.

Mr. BUTLER, Parliamentary Secretary to the Ministry of Labour, said the Government were sympathetic towards the possible reduction of hours in industry. They realised the strain of modern industry, and if they could devise any method of reducing unemployment they were out to use it. The Government did not think however that the method proposed in the motion was the best for reducing unemployment. The best method was to provide more work. The amendment appeared to the Government to suggest the most sensible decision to which the House could come at this stage. The Government had undertaken discussions with many industries in regard to reduced hours. An agreement was reached only a fortnight ago which covered 80,000 employees of grocery and multiple firms. It was proposed to hold conferences with a view to the regulation of conditions in the catering trades.

British Scientific Films

In the House of Commons on Nov. 4th Mr. OLIVER STANLEY, President of the Board of Trade, moved the second reading of the Cinematograph Films Bill which is designed to assist the British film industry.

Sir ERNEST GRAHAM-LITTLE expressed his fear that the effect of the Bill would be to restrict the output of educational films. As an instance of a scientific film, he had seen a few weeks ago a film presented by the secretary of the Zoological Society depicting items of food which were nutritious and those which were not. In the five minutes which that picture occupied the housewife would enjoy the presentation of the kinds of food worth buying and the kinds which were not. Such a film would make a far more effective impression on her mind than any written word. As an example of a much more scientific subject depicted by a film, a member of the staff of St. Bartholomew's Hospital was able to produce a film to demonstrate the progress of inflammation, which assisted the understanding of a very intricate and obscure process. Instances of this kind might be multiplied indefinitely, yet as far as he could see there was no provision in this Bill for promoting the activities of this great industry in that direction. The exhibition of short films ought not to be made more but less difficult.

Captain WALLACE, Parliamentary Secretary to the Board of Trade, said that up to the present there had not been a quota for shorts at all, and actually the place which they proposed in this Bill to reserve for British shorts, even though it might not be as big as some hon. Members would like, was a definitely protected place and one which at the present moment they had not got. So far from the proposals in the Bill being likely to kill the British short film industry, he maintained that it would help them and make their exhibition easier.

New Bills

On Nov. 3rd in the House of Commons Mr. ELLIOT, Secretary of State for Scotland, introduced the Housing (Agricultural Population) (Scotland) Bill, a measure to authorise the giving of financial assistance towards the expenses incurred by local authorities in providing housing accommodation for the agricultural population.

On Nov. 4th Sir S. HOARE, Home Secretary, introduced the Air Raid Precautions Bill, a measure to secure that precautions should be taken with a view to the protection of persons and property from injury or damage in the event of hostile attack from the air.

QUESTION TIME

WEDNESDAY, NOV. 3RD

Electrocution of Children by Live Rails

Brigadier-General CLIFTON BROWN asked the Minister of Transport whether he was aware that fatal accidents to children had continued to occur from contact with the live rail on the Southern Railway system; and what steps had he taken to ensure adequate protection by the railway authorities against this danger that they were introducing into the countryside.—Mr. BURGIN replied: I have been in communication with the Southern Railway Company about the recent cases of electrocution among children through contact with the live rail and I will circulate a full statement of the steps which the company propose to take to give additional protection against this danger.

Town and Country Planning

Mr. KELLY asked the Minister of Health the number of town-planning schemes submitted to the Ministry of Health since January, 1935.—Mr. BERNAYS replied: 159 planning schemes have been submitted to my right hon. friend since Jan. 1st, 1935.

Water Shortage

Mr. KELLY asked the Minister of Health how many districts or areas reported water shortage during recent months; and what steps were taken to deal with the position.—Mr. BERNAYS replied: My right hon. friend has received reports of shortage from 12 districts. In three of them additional supplies were readily available and have been provided. In the remainder, my right hon. friend is in communication with the local authorities concerned on the remedial measures required.

Jewish Doctors and Palestine

Mr. KIRKWOOD asked the Secretary of State for the Colonies if it was the case that a Jewish doctor before he could get into Palestine had to be prepared to put down £1000.—Mr. ORMSBY-GORE replied: Yes, Sir. Under the principle of regulation by economic absorptive capacity anybody with £1000 would be allowed in, but there are various categories. Whether the doctor would be admitted or not depends on which category he was in.

Mr. KIRKWOOD: I have got the reply from the Home Office that if my friend the doctor wishes to get into Palestine he has to be prepared to put down £1000. He

has no country. He cannot get back to his native land because he is a Jew. He has been educated at Glasgow University, but he is without any country.

Mr. ORMSBY-GORE: I know perfectly well that since the recent trouble in Central Europe there have been a very large number of Jewish doctors from Germany and Poland who have already become established in Palestine, and to establish more doctors in Palestine might only deprive the present Jewish doctors of a chance of making a living.

Colonel WEDGWOOD: Is the right hon. gentleman aware that this departure of limiting the number of Jews, not by economic absorptive capacity but by the Act of the Government, is regarded by the Jews in Palestine, and by those who approved of the mandate in this country, as being a deliberate breach of the mandate?

Mr. ORMSBY-GORE: We have always denied that this is any breach of the mandate. I know that the Jews wish to be back under the old economic absorptive system, but for the interim period of eight months we decided to adopt this arbitrary figure.

THURSDAY, NOV. 4TH

Sanitary Conditions at Wandsworth Prison

Mr. THURTLE asked the Home Secretary if he was aware that some of the cells in Wandsworth prison were in a verminous condition; that the vans used for the conveyance of prisoners from prison to court were so constructed that prisoners were unable either properly to stand or sit down, and that frequently prisoners due for trial were not provided with facilities for washing and shaving before appearing in court; and if he had any statement to make.—Sir SAMUEL HOARE replied: In the course of a year over 3000 prisoners pass through Wandsworth Prison, and occasionally the presence of vermin in cells is detected. Close watch is kept and stringent measures of cleansing are at once taken whenever vermin appear. As regards the police vans and tenders in which prisoners are conveyed to court, they are provided with seats and the compartments are so constructed as to allow of sitting in a normal position. I know of no foundation for the statement that prisoners are not provided with facilities for washing and shaving. All prisoners are provided with facilities for washing in their cells; and there are regular arrangements for shaving, special care being taken to see that remand prisoners have opportunities for shaving before their appearance in court.

Nurses Committee: Terms of Reference

Mr. TURTON asked the Minister of Health what would be the terms of reference of the committee which he proposed to set up to inquire into the status and recruitment of nurses.—Sir KINGSLEY WOOD replied: The proposed terms of reference of the committee to be appointed by the President of the Board of Education and myself are as follow: To inquire into the arrangements at present in operation with regard to the recruitment, training, registration, and terms and conditions of service of persons engaged in nursing the sick and to report whether any changes in those arrangements or any other measures are expedient for the purpose of maintaining an adequate service both for institutional and for domiciliary nursing. I am glad to say that the Earl of Athlone has consented to act as chairman and I hope to announce the names of the rest of the committee very shortly.

Mr. JAGGER: Will the terms of reference enable the committee to inquire into the present unjust position of nurses who pay superannuation contributions and are not allowed to reclaim?

Sir K. WOOD: The terms of reference are very wide, and I think that anything which affects their status and conditions of recruitment can properly be considered.

Mr. KELLY: Will the terms of reference cover not only general hospitals but mental hospitals?

Sir K. WOOD: Yes, I think so.

Nutritive Values of Bread

Mr. TURTON asked the Minister of Health whether he would refer to the advisory committee attached to his department the question of the different nutritional values of whole-meal bread, brown bread, and white bread, and publish the report of the advisory committee when they had considered the matter and made their report to him.—Sir KINGSLEY WOOD replied: I will convey my hon. friend's suggestion to the committee and ask them to consider the question of dealing with the matter either in their next general report or otherwise. I should certainly contemplate the publication of any report by the committee on this subject.

Consolidation of Food Law

Mr. CARTLAND asked the Minister of Health if, among other measures to be laid before the House of Commons, alluded to in the Gracious Speech from the Throne, there would be one to give effect to the recommendations of the departmental committee on the composition and description of food which reported in 1934; and whether the Committee on the Consolidation of Local Government and Public Health Law had now prepared such a Bill.—Sir KINGSLEY WOOD replied: I do not propose to introduce special legislation but I understand that the Committee on the Consolidation of Local Government and Public Health Law have had the recommendations referred to in mind and that their report on the law relating to food, together with a draft Bill, is likely to be presented to me about the end of the year.

Llanelly Hospital Maternity Arrangements

Mr. JAMES GRIFFITHS asked the Minister of Health if his attention had been called to the decision of the management committee of the Llanelly General Hospital to close forthwith the hospital against the admission of maternity cases; whether he was aware that there was no hospital provision for the reception of maternity cases in the whole of the eastern portion of the county of Carmarthen, including the town of Llanelly, which had a population of over 70,000; and, in view of the high maternal mortality-rate prevailing in the county, whether he would take steps, in conjunction with the Carmarthen county council and the Llanelly borough council, to deal immediately with this grave position by the provision of a maternity hospital in the eastern portion of the county.—Sir KINGSLEY WOOD replied: My attention had not previously been drawn to the matter referred to in the first part of the question. I am aware, however, of the need for the provision of maternity accommodation in this area, and I am glad to say that arrangements are being made for a conference to be held at an early date between representatives of the Carmarthen county council and the Llanelly borough council. I shall be glad to arrange, if the local authorities so desire, for a representative of my department to attend the conference.

MONDAY, NOV. 8TH

Blindness Due to War Service

Mr. ROSTRON DUCKWORTH asked the Minister of Pensions how many cases of blindness had been accepted as due to war service or accentuated by it in each of the last three years; and how many pensions in each period had been awarded for the discovery of hitherto unsuspected shrapnel.—Mr. H. RAMSBOTHAM replied: The cases of impaired vision, including those of total blindness, which were accepted in each of the last three years numbered respectively 9, 10, and 9. The numbers of wounds and injuries accepted for compensation or for any necessary treatment in the same years were respectively 456, 393, and 386. A proportion of these cases would represent the effects of shrapnel which had previously caused no disablement, but I am unable to give figures separately for this class of case.

The Mantoux Test

Mr. LEACH asked the Postmaster-General whether he was aware that the machinery of the civil service was being used on behalf of the Prophit Trust, letters being sent officially to the staff at the money order office asking them to volunteer to undergo an examination consisting of an X ray photograph of the chest and a skin test; whether this skin test would be either the Pirquet or the Mantoux tuberculin test; whether he was aware that there was a considerable difference of opinion in medical circles as to the significance of skin tests in tuberculosis and that the injection of tuberculin into the skin had occasioned a violent reaction in susceptible individuals; and whether he would stop this exploitation of young civil servants in the interests of a form of research which might damage the health of those undergoing it and

could not lead to any certain results.—Sir W. WOMERSLEY, Assistant Postmaster-General, replied: I am aware that the Royal College of Physicians are carrying out, on behalf of the Prophit Trust, a large-scale research with a view to the early detection and prevention of tuberculosis in young adults, and that, with the previously obtained concurrence of the staff associations concerned, they have been allowed to ask for volunteers among the Post Office staff, including the staff at the money order department. The whole scheme is on an entirely voluntary basis, and there is no element of compulsion whatsoever. The Mantoux test is used and it is the efficacy of this test which is the subject of investigation. I am advised that no danger is involved and that the voluntary coöperation in this matter of young civil servants, amongst others, may be the means of very practical assistance in the campaign against pulmonary tuberculosis.

Family Budgets

Mr. SANDYS asked the Minister of Labour whether it was intended to publish a full summary of the results of the inquiry at present being conducted into family budgets; and, if so, when he expected to be in a position to do so.—Mr. BUTLER, Parliamentary Secretary to the Ministry of Labour, replied: A full summary will be published in due course. I would remind my hon. friend that four sets of budgets are to be collected, the last of them in the summer of next year. It will be a considerable time, therefore, before the complete results will be known.

TUESDAY, NOV. 9TH

Durham Collieries and Influenza

Mr. DAVID ADAMS asked the Secretary for Mines whether he was aware that in order to ward off influenza, the owners of certain Durham collieries employing some 10,000 men and boys were supplying each man with a three weeks' supply of iodised milk tablets, an experiment successfully initiated last year; and whether he would call the attention of colliery owners generally to this health precaution with a view to its adoption throughout the industry.—Captain EUAN WALLACE, Parliamentary Secretary to the Board of Trade, replied: I am aware of this interesting experiment at certain collieries in Durham and Northumberland and this question will serve to call further attention to it.

Medical Standard of Recruits

Mr. DAY asked the Secretary of State for War what fresh steps the Government were now preparing for the purpose of stimulating recruiting; and if any arrangements were being made by the various Government departments in order that further preference might be given to time-expired soldiers in the public services after having completed their Army service.—Mr. HORE-BELISHA replied: Recruiting, as the hon. Member will be aware, has been steadily improving in recent months. The weekly figures which have come in to-day for London again show a striking increase—the increase being over 100 per cent. compared with the corresponding week last year. I trust the hon. Member will await the Estimates for any further proposals which may be desirable.

Lieut.-Commander R. F. FLETCHER: Is the increase in recruiting due to a lowering of the medical standard?—Mr. HORE-BELISHA: I suppose to some extent that would be the case, I do not know that I would admit that the standard has been lowered. There have been certain changes which are in accordance with common sense. There was, for instance, a limitation on the number of false teeth which a recruit was supposed to have. I have removed that limitation.—Sir A. KNOX: Have there been any changes in the standard of sight and hearing?—Mr. HORE-BELISHA: Revisions have been made in accordance with common sense. The requirements of physique have in no way been changed, but in teeth, sight, and hearing there have been revisions.

MEDICAL NEWS

University of Oxford

Prof. L. J. Witts of St. Bartholomew's Hospital has been appointed to the Nuffield chair of clinical medicine.

Dr. Witts was born in 1898 and educated at the Boteler Grammar School, Warrington. After war service from 1916 to 1918 he began the study of medicine at Manchester University, where he graduated with first-class honours in 1923. Having been house physician at the Manchester Royal Infirmary and at the Brompton Hospital he was awarded the Dickinson travelling scholarship and worked in America from 1924 to 1926. A period of study in Prague followed, after which he became John Lucas Walker student in pathology at Cambridge. In 1928 he was made assistant in the medical unit at the London Hospital and in 1929 assistant physician to Guy's Hospital. He held the Will Edmonds clinical research fellowship from 1929 until 1934 when he succeeded Prof. F. R. Fraser as director of the medical professorial unit at St. Bartholomew's Hospital. Dr. Witts was elected a fellow of the Royal College of Physicians in 1931 and was Goulstonian lecturer in the following year. He is the present secretary of the Association of Physicians. In his research he has worked chiefly on diseases of the blood and his name has been given to a form of anæmia which he described. He has also written on a large variety of medical subjects, including asthma, gastro-intestinal diseases, and endocrine disorders.

Dr. E. S. Duthie has been appointed second May reader in medicine.

Radcliffe Travelling Fellowship, 1938.—An examination for this fellowship, which is of the annual value of £300 and tenable for two years, will be held on Feb. 8th.

Candidates must be graduates of the University in arts and medicine, and not more than four years must have elapsed since they passed the last examination required for the B.M.

The fellow will be expected to spend at least twelve months abroad during the two years.

The examination will include papers on physiology, pathology, and preventive medicine, and a subject will be proposed for an essay. There will also be a practical examination in pathology. Candidates may also offer in addition a special branch of either medicine or surgery.

Further information may be had from the regius professor of medicine, University Museum, to whom applications should be sent before Jan. 31st.

George Herbert Hunt Travelling Scholarship, 1938.—This scholarship is awarded without examination every second year to a graduate in medicine of the University of not more than five years' standing. It is of the value of about £100.

Candidates will be expected to travel abroad for a period of not less than three months for the purpose of clinical study or research in medicine. Preference will be given to candidates who intend to practise as surgeons or general practitioners.

The next election will be made on April 9th, and candidates should send their applications to the dean of the school of medicine, University Museum, Oxford, on or before Feb. 26th.

Royal College of Physicians of Edinburgh

At a meeting of the College held on Nov. 2nd, with Dr. W. T. Ritchie, the president, in the chair, Dr. Francis Esmond Reynolds (Glasgow) and Dr. Charles Kelman Robertson (Edinburgh) were formally admitted to the fellowship. Dr. J. D. W. Pearce (London), Dr. J. P. McGibbon (Edinburgh), and Dr. W. Melville Arnott (Edinburgh) were elected to the fellowship. The Hill Pattison-Struthers bursary in clinical medicine was awarded to Dr. W. Stuart Thomson, and in anatomy and physiology to Mr. A. C. Buchan.

Huxley Lecture

The biennial Huxley lecture will be given at Charing Cross Hospital medical school on Thursday, Nov. 18th, at 5 P.M., by Prof. E. D. Adrian, F.R.S., who will speak on Huxley, the Brain and the Mind.

British Institute of Radiology

The eleventh annual congress of this institute will be opened by Dr. Russell Reynolds in the presence of Queen Mary on Dec. 8th at the Central Hall, Westminster. The medical sessions on Dec. 9th and 10th are to be devoted to a symposium on radiology in the investigation of industrial disease and a medical exhibit consisting of radiographs of cases of industrial disease has been arranged. At the physical session on Dec. 9th there will be a symposium on X ray research in industry. The X ray industry is showing a scientific exhibit during the congress. The Mackenzie Davidson memorial lecture will be delivered by Dr. Gilbert Scott at 5 P.M. on Dec. 9th and the Silvanus Thompson memorial lecture at 3 P.M. on Dec. 10th by Prof. J. A. Crowther, Sc.D.

Royal Institute of Public Health and Hygiene

The King has consented to become patron of this institute.

Royal Microscopical Society

At a meeting of this society at B.M.A. House, Tavistock-square, London, W.C., at 5.30 P.M., Mr. J. E. Barnard, F.R.S., and Mr. F. V. Welch will read a paper on the principles of fluorescence microscopy, and Mr. H. Wrighton will demonstrate a new type of microscope lamp.

Royal Society of Arts

On Wednesday, Nov. 17th, at 8.15 P.M., Mr. W. W. Wakefield, M.P., will read a paper to this society on the promotion of outdoor recreations. Applications for tickets should be sent to the secretary of the society at John-street, Adelphi, London, W.C.2, where the meeting will be held.

Society for Cultural Relations with the U.S.S.R.

This society is holding a soirée at the Bonnington Hotel, 92, Southampton-row, London, W.C., on Friday, Nov. 19th, at 8.30 P.M., when Dr. N. E. Waterfield will describe his visit to the U.S.S.R. as a representative of the British Medical Association. All who are interested are invited to attend.

Glasgow University Club, London

A dinner of this club will be held at the Trocadero Restaurant, London, W., on Tuesday, Dec. 14th, at 7.30 P.M., with Prof. W. Macneile Dixon in the chair. Any Glasgow University men who, though not members of the club, wish to attend are asked to communicate with the hon. secretaries, 62, Harley House, London, N.W.1.

Medico-Chirurgical Society of Edinburgh

At a meeting of this society on Nov. 3rd the following office-bearers were elected: president, Mr. W. J. Stuart; vice-presidents, Prof. Edwin Bramwell and Mr. J. W. Struthers; councillors, Dr. Fergus Hewat, Dr. P. Martin Brodie, Mr. Bruce Dick, and Dr. H. L. Wallace; treasurer, Mr. W. W. Carlow; secretaries, Dr. T. R. R. Todd and Mr. Walter Mercer; and editor of transactions, Dr. John D. Comrie.

Institute of Child Psychology

Eight lectures on hindrances to success in life are being given at Friends House, Euston-road, N.W., on Wednesdays at 6.15 P.M. The series started on Nov. 10th and the speakers will include Dr. Sibylle Yates, Dr. Ethel Dukes, Dr. Elspeth Macleod, and Dr. Margaret Lowenfeld. Further information may be had from the secretary of the institute, 26, Warwick-avenue, London, W.9.

Society of Public Analysts and Other Analytical Chemists

The office of this society has been transferred to 7 and 8, Idol-lane, London, E.C.3, and communications relating to the routine business of the society should be addressed to Mr. J. H. Lane, F.I.C., there. Mr. Lane has been appointed secretary in succession to Mr. C. Ainsworth Mitchell, D.Sc., who has resigned.

Communications relating to the *Analyst* should still be addressed to Dr. Mitchell at 16, Blomfield-road, London, W.9.

Botanical Exploration

The need for exploration by a skilled pharmacognosist was suggested by Mr. T. A. Sprague, D.Sc., deputy keeper of the herbarium and library at Kew, in a paper read at a meeting of the Pharmaceutical Society on Nov. 9th. He said that nothing was more striking in the history of pharmacognosy than the great time-lag that sometimes occurred between the discovery and use of a vegetable drug and the botanical description of the plant that yields it. The famous drug *Costus arabicus* (*Saussurea lappa*) is mentioned in the Old Testament as one of the ingredients of the holy anointing oil, and was known to Theophrastus and Dioscorides, yet its botanical source was not established until 1842. Another instance of this time-lag is the lesser galangal (*Languas officinarum*); this drug has been employed in pharmacy for over a thousand years, but the plant which yields it was not described botanically until 1873. Dr. Sprague added, in support of his suggestion, that we are still ignorant of the precise botanical sources of such drugs as curare, coto bark, and sagapenum.

Society for Constructive Birth Control

The annual general meeting of this society will be held at Manson House, 26, Portland-place, London, W., on Thursday, Nov. 18th, at 8.30 P.M., when Mrs. Marie Stopes, D.Sc., will speak on The Year's Work, and Behind the Scenes in the Present Crisis.

College of Pharmacy

Mr. H. Berry, B.Sc., Ph.C., has been appointed dean in succession to Dr. J. H. Burn, who also held the chair of pharmacology to which Dr. J. H. Gaddum was recently appointed. Mr. Berry has been vice-dean since the retirement of the late Prof. H. G. Greenish at the end of 1933.

Appointments

BURTENSHAW, J. M. L., B.M. Oxon., D.P.H., Assistant Pathologist at the Southern Group Laboratory, Park Hospital (L.C.C.).

GILLESPIE, MARJORIE, M.D. Glasg., Assistant Pathologist at the Group Laboratory, North-Western Hospital (L.C.C.).

KIMBELL, C. W., M.B. N.Z., F.R.C.S. Edin., Registrar at the Samaritan Free Hospital for Women, London.

MACRAE, D. J., M.D., F.R.C.S. Edin., M.C.O.G., Obstetric Registrar at St. Mary's Hospital, London.

MCGEORGE, MURRAY, M.B. N.Z., M.R.C.P. Lond., Resident Medical Officer at Dunedin Hospital and Medical Tutor at the University of Otago.

OLIVER, L. C., F.R.C.S. Eng., Resident Assistant Surgeon at the West London Hospital.

SEAGER, K. G., M.B. Lond., Resident Medical Officer at the City General Hospital, Leicester.

SHINE, T. F., M.B. N.U.I., Resident Medical Officer at the City General Hospital, Leicester.

STRAKER, EDITH A., M.B. Lond., D.P.H., Assistant Pathologist at the Group Laboratory, Mile End Hospital (L.C.C.).

SWAIN, V. A. J., M.R.C.S. Eng., Resident Medical Officer at the Royal Northern Hospital.

WINKLER, E. R., M.D. Vienna, L.R.C.P. Edin., Chief Assistant to the Department for the Treatment of Injuries at the West London Hospital.

WINNER, ALBERTINE L., M.D., M.R.C.P. Lond., Hon. Physician to the Salvation Army's Mothers' Hospital, London.

WYNNE, A. J., M.B., B.D.S., Dental Officer to the Board of Education.

Royal Sussex County Hospital, Brighton.—The following appointments are announced:—

HUNT, E. RIVAZ, M.D. Camb., M.R.C.P. Lond., Hon. Consulting Physician;

SCOTT, E. D., M.D., M.R.C.P. Lond., Hon. Physician; and

PRICE, R. KEMBALL, M.D., M.R.C.P. Lond., Hon. Assistant Physician.

London Homœopathic Hospital.—The following appointments are announced:—

BLACKIE, MARGERY G., M.D. Lond., Physician for Diseases of Children:

NICHOLSON, B. C., M.D. Camb., M.R.C.P. Lond., D.P.H., Assistant Physician for Diseases of Children and Physician to the Children's Dispensary at Shepherd's Bush.

Births, Marriages, and Deaths

BIRTHS

GADDUM.—On Nov. 6th, at Oakhill, the wife of Dr. J. H. Gaddum—a daughter.

HARVERSON.—On Oct. 16th, at Ma-li-ping (Pa-de), Yunnan, China, the wife of Dr. Eric Harverson—a son.

LEAVER.—On Nov. 3rd, at Wimpole-street, W., the wife of Dr. Robert Leaver—a son.

MANDOW.—On Oct. 31st, at Minster, Isle of Sheppey, the wife of Dr. G. A. Mandow—a son.

SMITH.—On Nov. 3rd, at Queen Mary Hospital, Hong-Kong, the wife of Dr. Dean Smith, Government Medical Department, Hong-Kong—a son.

MARRIAGES

ADDISON—LOW.—On Nov. 4th, at St. Mark's Church, Regent's Park, Christopher, Baron Addison, P.C., F.R.C.S., to Beatrice Dorothy, elder daughter of Mr. and Mrs. Low, of Thames View House, Staines.

DEATHS

BANSALL.—On Nov. 1st, at Cambridge, Walter Henry Bansall, M.B. Edin., in his 89th year.

GOODDY.—On Nov. 6th, at Cavendish, Suffolk, Edward S. Gooddy, F.R.C.S. Eng., aged 74.

GRAZEBROOK.—On Nov. 5th, at Newport, Barnstaple, Surg. Capt. Edwyn Robert Grazebrook, R.N. (retired), aged 65 years.

HUDSON.—On Nov. 1st, at Streatham, S.W., Edmund Hudson, M.R.C.S. Eng., aged 62 years.

OLIVER.—On Nov. 5th, Ralph Oliver, M.B. Lond., F.R.C.S. Edin.

PRATT.—On Nov. 7th, Reginald Pratt, M.D., M.R.C.P. Lond., late Lieut.-Col. R.A.M.C. (T.), of Leicester, in his 81st year.

ROUGHTON.—On Nov. 8th, at Hove, Walter Roughton, F.R.C.S. Eng.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary

SOCIETIES

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, Nov. 16th.—5.30 P.M., general meeting of fellows.
Pathology. 8.15 for 8.30 P.M. (Royal Cancer Hospital, Fulham-road, S.W.), E. Boyland and H. Burrows: 1. Lesions in Rabbits after the Administration of 1:2:5:6-dibenzanthracene. 2. Changes Caused in the Testes of Mice by Vitamin-A Deficient Diet. H. Burrows, J. W. Cook, L. M. Hawksley, E. Roe, and F. L. Warren: 3. Isolation of an Abnormal Hormone from the Urine of a Man bearing a Tumour of the Adrenal Cortex. J. W. Cook: 4. Carcinogenic and Non-carcinogenic Derivatives of 3:4-benzpyrene. J. W. Cook and E. L. Kennaway: 5. Tumours of the Rat produced by Methyl-cholanthrene. Alexander Haddow: 6. Inhibitory Effects of Carcinogenic Substances. C. L. Hewett: 7. Tumours produced by 3:4-benzphenanthrene and a Methyl Derivative. W. V. Mayneord, J. R. Clarkson, and L. D. Parsons: 8. Effect of X Rays on Tumour Production. C. C. Bryson, R. D. Clay, and L. M. Hawksley: 9. Some Benign Neoplasms of the Gastro-intestinal Tract. 10. A Series of Testicular Tumours. 11. A Few Examples of Unusual Tumours. 12. A Rapid Method for Staining Frozen Sections. C. G. Ahlström and C. H. Andrewes: 13. Results of Inoculating Fibroma Virus into Tarred Rabbits. L. Foulds and W. E. Gye: 14. Sarcoma produced by Fibroma Virus in a Tarred Rabbit.
WEDNESDAY.
Surgery: Subsection of Proctology. 8.30 P.M. Mr. J. P. Lockhart-Mummery: Presidential Address.
THURSDAY.
Dermatology. 5 P.M. (Cases at 4 P.M.) Dr. J. D. Rolleston: Baron Alibert (1768–1837), his Life and Work. Dr. R. T. Brain: 1–2. Familial Epidermolysis Bullosa. Dr. H. W. Barber: 3. Vitiligo and Scleroderma.
FRIDAY.
Physical Medicine. 4.30 P.M. Dr. J. L. Halliday with Dr. R. G. Gordon: The Psychological Approach to Rheumatism.
Obstetrics and Gynæcology. 8 P.M. Dr. Letitia Fairfield: Survey of Maternity Work in the London County Council Hospitals since 1930. Prof. Munro Kerr, Prof. James Young, Dr. W. H. F. Oxley, and Mr. Arnold Walker will also speak.
Radiology. 8.30 P.M. Mr. Hugh Reid, Dr. J. V. Sparks, and Dr. E. W. Twining: Radiology and Chest Surgery.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.
THURSDAY, Nov. 18th.—8.15 P.M. (Hospital for Tropical Diseases, Endsleigh-gardens, W.C.), Clinical and Laboratory Meeting.

SOCIETY OF RADIOTHERAPISTS OF GREAT BRITAIN AND IRELAND, 11, Chandos-street, W.
FRIDAY, Nov. 19th.—4.30 P.M., Lord Horder: The Treatment of Hodgkin's Disease. Dr. Bromley, Dr. W. M. Levitt, Dr. J. P. Raban, and Prof. James McIntosh will also speak.

CHELSEA CLINICAL SOCIETY.
TUESDAY, Nov. 16th.—8.30 P.M. (Hotel Rembrandt, Thurloe-place, S.W.), Mr. John Grierson: Films and the Social Services (with cinematograph demonstration).

TUBERCULOSIS ASSOCIATION.
FRIDAY, Nov. 19th.—5.15 P.M. (26, Portland-place, W.), Mr. Lionel Pearson, F.R.I.B.A.: The Construction of the Tuberculosis Sanatorium. 8.30 P.M., Mr. J. E. H. Roberts, Dr. Maurice Davidson, and Dr. Lee Lander: Bronchiectasis in Tuberculosis.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck-street.
THURSDAY, Nov. 18th.—8.30 P.M., Dr. A. Robinson Thomas: Radiological Investigation of Colon. Mr. J. Read, Ph.D.: Radon Concentrations in the Atmosphere of Some Radium Centres.
FRIDAY, Nov. 19th.—Visit to the X Ray Department of St. George's Hospital. 5.30 P.M., Dr. A. Orley: Demonstration of Technique of Bronchography by the Nasal Route.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

HUXLEY LECTURE.
THURSDAY, Nov. 18th.—5 P.M. (Charing Cross Hospital Medical School), Prof. E. D. Adrian, F.R.S.: Huxley, the Brain and the Mind.

CHADWICK PUBLIC LECTURE.
TUESDAY, Nov. 16th.—5.15 P.M. (26, Portland-place, W.), Dr. Bernard Myers: The Promotion of Health in the Empire Citizen.

TAVISTOCK CLINIC, Malet-place, W.C.
TUESDAY, Nov. 16th.—6.15 P.M., Dr. Leonard Browne: Psychological Causes of War.
THURSDAY.—8.30 P.M., Sir Maurice Cassidy: Cardiac Neuroses.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.
TUESDAY, Nov. 16th.—4.30 P.M., Dr. C. M. Hinds Howell: Syphilis of the Nervous System.
WEDNESDAY.—Noon, clinical and pathological conference (medical). 2 P.M., Mr. E. J. King, Ph.D.: Intestinal and Pancreatic Function. 3 P.M., clinical and pathological conference (surgical). 4.30 P.M., Dr. S. R. Gloyne: The Pathology of Tuberculosis.
THURSDAY.—2.15 P.M., Dr. Duncan White: Radiological Demonstration. 3.30 P.M., Prof. J. Young: Abortion.
FRIDAY.—2 P.M., clinical and pathological conference (obstetrics and gynæcology). 2.30 P.M., Mr. V. Zachary Cope: Actinomycosis.
Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations, refresher course for panel practitioners.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, Nov. 15th.—10 A.M., Dr. Post: X Ray Film Demonstration, skin clinic. 11 A.M., surgical wards. 2 P.M., operations, surgical and gynæcological wards, medical, surgical, and gynæcological clinics.
TUESDAY.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.
WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics. 4.15 P.M., Mr. H. P. Gibb: Demonstration of Eye Cases.
THURSDAY.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, genito-urinary, and eye clinics. 4.15 P.M., Mr. B. G. Simmonds: lecture on surgical subject.
FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics. 4.15 P.M., Mr. A. Simpson-Smith: Umbilicus.
SATURDAY.—10 A.M., children's and surgical clinics. 11 A.M., medical wards.
The lectures at 4.15 P.M. are open to all medical practitioners without fee.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Nov. 15th, to SUNDAY, Nov. 21st.—ST. JOHN'S HOSPITAL, 5, Lisle-street, W.C., afternoon course in dermatology (open to non-members).—ROYAL WATERLOO HOSPITAL, Waterloo-road, S.E., all-day course in medicine, surgery, and gynæcology.—PRINCESS BEATRICE HOSPITAL, Richmond-road, S.W., Sat. and Sun., course in general surgery.—NATIONAL TEMPERANCE HOSPITAL, Hampstead-road, N.W., Tues. and Thurs., 8 P.M., clinical and pathological M.R.C.P. course.—Unless otherwise stated, courses are open only to members.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle-street.
TUESDAY, Nov. 16th.—5 P.M., Dr. W. N. Goldsmith: Infantile Eczema and Papular Urticaria.
WEDNESDAY.—5 P.M., Dr. I. Muende: Histopathology of New Growths of the Skin. (Chesterfield lectures.)

HOSPITAL FOR SICK CHILDREN, Great Ormond-street.
THURSDAY, Nov. 18th.—2 P.M., Dr. Reginald Lightwood: Splenic Anæmia. 3 P.M., Dr. A. Signy: Blood Groups.
Out-patient clinics daily at 10 A.M., and ward visits at 2 P.M.

NATIONAL HOSPITAL, Queen-square, W.C.
MONDAY, Nov. 15th.—3.30 P.M., Dr. Macdonald Critchley: Aphasia.
TUESDAY.—3.30 P.M., Dr. J. P. Martin: Affections of the Cranial Nerves.
WEDNESDAY.—3.30 P.M., Dr. F. M. R. Walshe: Clinical Demonstration.
THURSDAY.—3.30 P.M., Dr. Denis Brinton: Convulsions and Fits.
FRIDAY.—3.30 P.M., Dr. Bernard Hart: Psychopathology and the Psychoneuroses.

ST. GEORGE'S HOSPITAL, S.W.
THURSDAY, Nov. 18th.—5 P.M., Dr. Desmond Curran: Psychiatric Demonstration—Hypochondriacal States.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Nov. 19th.—4 P.M., Mr. C. Gill-Carey: Rhinological Aspects of Asthma.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, Ranelagh-road, S.W.
FRIDAY, Nov. 19th.—4.30 P.M., Dr. Philip Ellman: Physical Medicine in the Rheumatic Diseases (Assessment of Physical and other Methods).

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION.
WEDNESDAY, Nov. 17th.—4 P.M. (St. James' Hospital, Ouseley-road, S.W.), Mr. R. W. Mein and Mr. C. Garner: The Use of Elastoplast in Modern Surgery.

LEEDS GENERAL INFIRMARY.
TUESDAY, Nov. 16th.—3.30 P.M., Dr. J. T. Ingram: Some Common Skin Affections and their Treatment.

LEEDS PUBLIC DISPENSARY.
WEDNESDAY, Nov. 17th.—4 P.M., Dr. R. E. Tunbridge: The Treatment of Obesity.

MANCHESTER ROYAL INFIRMARY.
FRIDAY, Nov. 19th.—4.15 P.M., Dr. R. S. Paterson: Radiological Demonstration.

ANCOATS HOSPITAL, Manchester.
THURSDAY, Nov. 18th.—4.15 P.M., Dr. K. V. Bailey: Hæmorrhage in Conjunction with Pregnancy and Labour.

UNIVERSITY OF SHEFFIELD.
SUNDAY, Nov. 14th, and FRIDAY, Nov. 19th.—Post-graduate Clinics at the Royal Hospital, Royal Infirmary, and Jessop Hospital.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.
WEDNESDAY, Nov. 17th.—4.15 P.M. (Royal Infirmary), Prof. James Hendry: Traumatic Lesions following Childbirth.

NOTES, COMMENTS, AND ABSTRACTS

HYGIENE AND TROPICAL MEDICINE

THE London School of Hygiene and Tropical Medicine can justly claim that its students come from most parts of the world and go to all parts. The British Isles naturally provides more than any other country, but many come from India, Ceylon, and the United States, and are destined for posts in India, West and East Africa, Malaya, and Ceylon. Last year 137 of the 211 students took the course for the D.T.M. & H., 50 for the D.P.H., and the remainder studied bacteriology, epidemiology, or psychology. For the first time there was a course in mental deficiency for those who wished to be recognised as certifying officers. In 1936 Dr. N. Hamilton Fairley and Mr. R. J. Bromfield spent six weeks studying blackwater fever in Macedonia, where it is very prevalent, and confirmed the presence of the pigment "pseudo-methæmoglobin" in the blood in that disease. They found that the tropical macrocytic anæmia, which can be cured by Marmite, is comparatively common among the ill-nourished inhabitants. At the school itself investigations have been carried out into the production of satisfactory antilarval oils, into the biology of the bed-bug, a parasite whose fertility has been found to be seriously reduced by the chilliness of the average London bedroom, and into the efficacy of drugs in preventing sleeping sickness, a disease whose importance is increasing with the greater opportunities for travel in Africa. The divisions of bacteriology and biochemistry have succeeded in isolating from bacteria chemical fractions which induce an active immunity when injected. So far such fractions have been obtained from the organisms of typhoid fever, whooping-cough, and cholera, and from certain hæmolytic streptococci. An inquiry into the effects of feeding calves on raw and pasteurised milk showed that there was nothing to choose between the nutritive values of these milks. The reduction of methylene-blue, which is now used as a standard test in the grading of milk, was found to depend upon the property of certain organisms, especially the coliform group, of evolving nascent hydrogen from lactose. The division of epidemiology and vital statistics has been doing an increasing amount of official work for the Ministry of Health, the Medical Research Council, and the Industrial Health Research Board upon such subjects as maternal mortality, cancer research, and the incidence of sickness in transport workers. This last investigation was not instigated by the recent strike but has actually been occupying the attention of Mr. A. Bradford Hill, D.Sc., since 1934. The hardships of dwellers in the tropics may well be lightened by the use of the portable air-conditioned cubicles which have been developed by the department of applied physiology, and by employing reinforced aluminium foil as an insulator in the walls and ceilings of their rooms.

The report of the Ross Institute of Tropical Hygiene has this year been incorporated with that of the school. In it Sir Malcom Watson points out that, although 90 per cent. of the inhabitants of the tropics live on produce which they grow themselves, compared with 20 per cent. in England, the basic principles of hygiene are the same everywhere, and many diseases which are now called "tropical," such as cholera, dysentery, and malaria, were common in England before improved sanitation and land drainage drove them out. He draws attention to the importance of teaching health officers the principles of farming; the institute does this, and also in annual courses for laymen it teaches the elements of preventive medicine to a large number of planters missionaries, mining engineers and others. The workers abroad are mainly concerned with the prevention of malaria. In India their activities are to be extended with the help of grants from industrial concerns. In Northern Rhodesia they have been able to reduce the mortality among the European workers in the copper mines from 22 to 9 and among the natives from 31 to 5 per 1000. Elsewhere they have been dealing with anti-malarial measures in East and West Africa, with various health problems in the Hedjaz and, in England, have been advising Imperial Airways as to the best way of freeing their aeroplanes from mosquitoes.

THE "ELIXIR OF SULPHANILAMIDE" DISASTER

THE *Journal of the American Medical Association* for Oct. 30th gives further particulars of the fatal poisoning caused in the United States by administration of a proprietary elixir of sulphanilamide (see *Lancet*, Oct. 23rd, p. 976). By Oct. 25th the death-roll had risen to 46, with others as yet unconfirmed. "It appears," says the *Journal*, "that the use in this 'elixir' of diethylene glycol—an unstandardised, non-official product, not recommended or recognised for internal use—was responsible for the deaths."

BLACK HAMLET

Dr. Wulf Sachs, a psycho-analyst working in Johannesburg, was able to gain the confidence of an African witch doctor so far as to persuade him to submit to a psycho-analysis which lasted for two and a half years. Aided perhaps by his absence of moral judgment, he obtained a detailed account of the man's life and a deep insight into his mental processes. The craft of the witch doctor is revealed as a combination of sympathy and understanding on the one hand with gross superstition on the other, but the most valuable result of the investigation is the revelation of the emotional reactions called forth by the impact of our civilisation upon the native mind; unfortunately the results of this impact are not greatly to our credit.

The life-story of this Black Hamlet[1] holds the attention of the reader like a well-written novel, with its alternations of struggle and defeat and its thread of tragedy. The explanation of the motives of the central figure, which follows the same theme as the psycho-analytical explanation of the behaviour of the Shakespearian Hamlet, may not be acceptable to everyone, but the book stands alone as an intimate study of the life and mental workings of the negro mind such as very few people would attempt and fewer still could carry out successfully.

POOR OLD THINGS

IN this booklet[2] the author sets out proposals for improving the living conditions of old people in public assistance institutions. She would like to see more humanity and imagination applied to the daily life of old men and women in institutions, and the relaxation of stringent rules—e.g., greater elasticity in days and hours allotted for visiting, and more freedom in going out, even though some risk may be entailed. She emphasises the value of respecting personality by encouraging variety of dress, and she urges the use of monthly rather than weekly diet sheets, to avoid the monotony of waking up "to the certainty that because it is Tuesday there will be mince." Bedridden men and women, especially women, suffer greatly from being always in public, and Miss Matthews believes that cubicle curtains between the beds would be appreciated. She points out the hardship to old people of being wakened in the small hours of the morning to be washed, and says that an early cup of tea would probably produce more happiness than anything else that could be given.

The new buildings as visualised by Miss Matthews, though desirable, appear rather too elaborate in their aim at securing simplicity and homeliness. She

[1] Black Hamlet. By Wulf Sachs. London: Geoffrey Bles. 1937. Pp. 280. 10*s.* 6*d.*

[2] Housing the Infirm. By Olive Matthews. 1937. Pp. 42. 9*d.* Through W. H. Smith and Son, or post free from the author, at 44, Cresswell-place, London, S.W.10.

is all against grandeur, but she wants the home to be small—50 beds at the outside—and at the same time to contain day-rooms with open fires for not more than twelve people each, a non-smoking sitting-room, a silence room, a room where visitors can be received privately, and a dining-room large enough for concerts and entertainments. A sensible economy proposed is the concentration of maternity cases in one centre in each county or county borough instead of providing for them in every institution.

NEW PREPARATIONS

LYSANTOL MOUTH WASH is a new deodorant and detergent for use, when diluted, as a mouth-wash or gargle. It is described as non-caustic and non-poisonous, and the makers (Allen and Hanburys Ltd., London, E.2) state that it has the same germicidal strength as 50 per cent. carbolic acid. The antiseptic constituents include chlor-xylenol, menthol, and benzoic acid; it has a pleasant smell and does not stain.

FERRIPAN.—Made by Troponwerke of Cologne-Mülheim, this preparation is intended for administration by mouth where iron, liver extract and a small quantity of copper are likely to be helpful. The formula, which is designed to obviate gastric disturbance or constipation, is given as follows: fat-free purified liver, 5·0; iron albumin (Fe=2·6), 16·2; copper albumin (Cu=0·05), 11·0; nucleo-vitellin, 10·2; saccharose, 30·0; excipient, 27·6. The English distributors are Harker, Stagg and Morgan Ltd., Emmott-street, E.1.

From J. Flint, Sandoz Products (134, Wigmore-street, W.1), come two pamphlets in their Modern Therapy Series. The first, on DISORDERS OF THE DIGESTIVE SYSTEM, describes the application, in such disorders, of their preparations Femergin (ergotamine tartrate), Bellafoline (lævorotatory alkaloids of belladonna), Belladenal (a combination of the Bellafoline with phenobarbitone), Bellergal (a combination of Femergin and Belladenal with phenobarbitone), and Calcibronat and Calcium-Sandoz. The second describes particularly the treatment of MIGRAINE with ergotamine tartrate.

BRITISH DRUG HOUSES LTD. (Graham-street, N.1) have revised their price list of B.D.H. Medical Products. It includes a therapeutic index, an attractively illustrated account of the activities of the firm, and descriptive notes on their various products, outfits, and appliances, many of which have been issued since the last list appeared. There is also a catalogue of solutions prepared for injection.

BAYER PRODUCTS LTD. (Africa House, Kingsway, W.C.2) send their "concise guide" for 1937–38 to the pharmaceutical preparations of the I.G. Farbenindustrie A.G., known in Germany under the name of Bayer. This guide contains a therapeutic index and much information conveniently arranged. The Bayer preparations are available day and night from John Bell and Croyden Ltd. (50, Wigmore-street, W.1).

Vacancies

For further information refer to the advertisement columns

Ashton-under-Lyne District Infirmary.—Surgeon in Charge of Fractures.

Ayr, Seafield Maternity Hosp.—H.P., at rate of £200.

Benenden, Kent, National Sanatorium.—Res. Asst. M.O., £350. Also H.P., at rate of £150.

Birmingham City Education Committee.—Asst. School M.O., £500.

Blackpool, Victoria Hosp.—Pathologist, £600.

Bolton Royal Infirmary.—Res. Surg. O., £250. Also H.P. and H.S., at rate of £200 and £150 respectively.

Brighton County Borough Mental Hosp., Haywards Heath.—Med. Supt., £1100.

Brighton, Royal Sussex County Hosp.—Two Hon. Clin. Asst. Anæsthetists. Also H.P., £150.

Brighton, Sussex Eye Hosp., Eastern-road.—H.S., at rate of £150.

Bristol, Winford Orthopædic and Heart Hosp.—M.O., £325.

British Medical Association, Tavistock Square, W.C.—Asst. Secretary, £800.

Cambridge, Addenbrooke's Hosp.—Res. Anæsthetist and Emergency O., at rate of £130.

Canterbury, Kent and Canterbury Hosp.—Hon. Dermatologist. Also Hon. Asst. Physician.

Cape Town University.—Chair of the Practice of Medicine £1250.

Cardiff, King Edward VII Welsh National Memorial Association. Asst. Tuber. M.O. for North Wales Sanatorium, £500. Also Asst. Res. M.O. for Glan Ely Hosp., £200.

Chelsea Hosp. for Women, Arthur-street, S.W.—Jun. H.S., at rate of £100.

Chesterfield and North Derbyshire Royal Hosp.—H.S., at rate of £150.

Cumberland County Council.—Consultant in Gynæcology and Obstetrics, £450.

Dewsbury, Staincliffe County Hosp.—Deputy Med. Supt., £350.

Dreadnought Hosp., Greenwich, S.E.—Two Receiving Room Officers, at rate of £100.

East Ham Memorial Hosp., Shrewsbury-road, E.—Dental Anæsthetist, 10s. 6d. per session.

Edinburgh City, Public Health Dept.—Asst. Tuber. O., £600.

Evelina Hosp. for Sick Children, Southwark, S.E.—H.S., at rate of £120.

Hertford County Hosp.—H.S., at rate of £200.

Hospital for Sick Children, Great Ormond-street, W.C.—Res. Anæsthetic Reg., at rate of £150.

Hosp. for Tropical Diseases, Gordon-street, W.C.—Res. Med. Supt., £400.

Hospital for Women, Soho-square, W.—Pathologist and Registrar, £100.

Ilford Isolation Hosp.—Res. M.O., £600.

Ilkley, Middleton-in-Wharfedale Sanatorium.—Jun. Res. M.O. £350.

Indian Medical Service.—Officers.

Inverness, Royal Northern Infirmary.—Med. Consultant and Hon. Charge-Physician, £1200.

Kettering and District General Hosp.—H.P., at rate of £150.

Leeds, St. Mary's Infirmary, Armley.—Res. M.O., £250.

London Chest Hosp., Victoria Park, E.—Res. M.O., £350. Also H.P., £100.

London Hosp., E.—Asst. Radiologist, £200.

Louth Public Health Hosp.—Med. Supt., £800.

Manchester, Baguley Sanatorium.—Res. Jun. Asst. M.O., at rate of £250.

Manchester, Crumpsall Hosp.—Res. Asst. Obstet. Officer, at rate of £250.

Maudsley Hosp., Denmark Hill, S.E.—Part-time M.O., £300.

Melbourne University.—Sen. Lectureship in Anatomy, £550.

Middlesex County Council.—Visiting Laryngologist for County Sanatorium, 3 gns. per session.

Middlesex Hosp., W.—Asst. Obstet. and Gynæcological Surgeon. Also Asst. Aural Surgeon.

Miller General Hosp., Greenwich-road, S.E.—Res. Surg. O. and Reg., £250. Also H.P. and H.S., each at rate of £100.

National Hosp. for Diseases of the Heart, Westmoreland-street, W. Hon. Physician to Out-patients.

Newcastle-upon-Tyne, King's College Medical School.—Demonstrator in Dept. of Anatomy, £400.

Newport County Borough.—Asst. and Jun. Res. Asst. M.O.'s, £350 and £150 respectively.

Nottingham General Hosp.—Res. Cas. O., at rate of £150.

Nottingham, Ransom Sanatorium and Sherwood Village Settlement.—Med. Supt., £750.

Paddington Green Children's Hosp., W.—Hon. Ophth. Surgeon. Also Hon. Physician to Skin Dept.

Plymouth Education Committee.—Sen. Asst. M.O., £750.

Plymouth, Prince of Wales's Hosp., Greenbank-road.—Res. Surg. O., at rate of £225.

Prince of Wales's General Hosp, N.—Hon. Clin. Assts.

Queen Charlotte's Maternity Hosp., Marylebone-road, N.W.—Res. Anæsthetist, at rate of £100. Res. Anæsthetist and Dist. Res. M.O., at rate of £90. Also Asst. Res. M.O., £80.

Queen's Hosp. for Children, Hackney-road, E.—H.P., H.S., and Cas. O., each at rate of £100.

Queen Mary's Hosp. for the East End, Stratford, E.—Res. Appointments, at rate of £150–£110.

Royal Air Force Dental Branch.—Commissions.

Royal Masonic Hosp., Ravenscourt Park, W.—Res. M.O., £300. Also Res. Surg. O., at rate of £250.

Royal Waterloo Hosp. for Children and Women, Waterloo-road, S.E.—H.S., at rate of £100.

St. Andrews University.—Lectureship in Bacteriology and Asst. Directorship of Bacteriological Laboratory, £600.

St. Bartholomew's Hosp., E.C.—Chief Asst. to Dental Dept.

St. George's Hosp., S.W.—Asst. in Bacteriological Dept., £250.

St. John's Hosp. for Diseases of the Skin, 5, Lisle-street, W.C.—Two Hon. Asst. Physicians.

Shrewsbury, Eye, Ear, and Throat Hosp.—H.S., at rate of £225.

Sleaford, Lincs, Rauceby Mental Hosp.—Asst. M.O., £350.

Southampton Free Eye Hosp.—H.S., £150.

South London Hosp. for Women, Clapham Common, S.W.—Res. M.O., £150.

South Shields County Borough.—Asst. M.O., £500.

South Shields Ingham Infirmary.—Res. Surg. O., £300.

Stafford, Standon Hall Orthopædic Hosp.—H.S., £200.

Walford and District Peace Memorial Hosp.—H.P., at rate of £150.

West End Hosp. for Nervous Diseases, Welbeck-street, W.—Hon. Asst. Physician.

West Middlesex County Hosp., Isleworth.—Obstet. Surgeon, £1000.

Wickford, Runwell Hosp. for Nervous and Mental Disorders.—H.P., at rate of £150.

Woolwich and District War Memorial Hosp., Shooters Hill, S.E.—H.P. and H.S., each at rate of £100. Also Hon. Laryngologist.

The Chief Inspector of Factories announces a vacancy for a Certifying Factory Surgeon at Broughton (Southampton, Hants).